



Kooryunderup / Mount Hallowell Management Plan 2025 - 2035, Shire of Denmark, WA



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LIST OF ABBREVIATIONS

BC Act	Biodiversity Conservation Act 2016
DBCA	Department of Biodiversity, Conservation and Attractions
DP	Deposited Plan
DPIRD	Department of Primary Industries and Regional Development
DPLH	Department of Planning, Lands and Heritage
DWER	Department of Water and Environmental Regulation
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
km	Kilometres
MAF	Mitigation Activities Fund
M AHD	metres Australian Height Datum
mm	millimetres
PEC	Priority Ecological Community
SWALSC	South West Aboriginal Land and Sea Council
TEC	Threatened Ecological Community

ACKNOWLEDGEMENTS

We wish to acknowledge the traditional custodians of the land that supports Kooryunderup / Mount Hallowell and its surrounding landscape. The people of the Noongar Nation were the first to protect and manage this rich area. We respect their continuing culture and their contribution to the care of this land.

Thanks to the Shire of Denmark staff, community stakeholder organisations, groups and individuals who have provided advice, expertise, diverse perspectives and local insights in developing this management plan.

EXECUTIVE SUMMARY

Kooryunderup / Mount Hallowell is an iconic reserve located between the town of Denmark and the Southern Ocean in Western Australia. With sweeping views, natural bushland and majestic granite domes and tors, the reserve is much loved and visited by locals and tourists in increasing numbers. It can be accessed from Ocean Beach Road to the east and Lights Road to the south and is traversed by the Sheila Hill Memorial Trail, which forms a section of the Bibbulmun Track.

The purpose of this management plan is to guide sustainable use and management of the Reserve where conservation, culture and heritage are the key goals. Where recreation is compatible with these goals, low key activities such as walking, hiking, running and nature appreciation are supported.

Management goals include:

1. Conservation: The primary goal of managing the reserve is to protect natural biodiversity through sound management of threatening processes.
2. Recreation and infrastructure: Low-key passive recreation activities (such as walking, running and hiking, birdwatching) will be encouraged where they will not impact the conservation values of the Reserve. This includes low key cycling and retention of an existing mountain bike trail in the south east portion of the reserve. Dogs can be walked off leash in designated areas, with dogs on leashes permitted on the Bibbulmun Track.
3. Fire management: The goal is to protect the Reserve's environmental values and the lives and property of surrounding landowners through best-practice fire management and active wildfire suppression.
4. Culture and Heritage: Kooryunderup / Mount Hallowell is a significant cultural and heritage site for Traditional Custodians, and it will be managed to protect these values.
5. Community engagement, research and education: As an area rich in biodiversity, the goal is to raise awareness of the Reserve's intrinsic and educational value while promoting ongoing citizen science and other research initiatives.
6. Land use planning and compliance: With threats such as fire, the introduction and spread of dieback, user safety, and management of neighbouring properties, land use planning and compliance outcomes must be achieved.

Consultation and site assessment during the management plan review process indicates that:

Conservation

- Kooryunderup / Mount Hallowell is highly valued by the community, with conservation and biodiversity values perceived as the most significant management consideration for the Reserve.

Recreation and Infrastructure

- The community supports low-key and passive pursuits, including walking dogs, hiking and running (Bibbulmun Track and Sheila Hill Trail), nature appreciation and birdwatching.
- There have been differing views on the inclusion of biking in the Reserve. Potentially high impact mountain biking requiring jumps, speed and aerial moves was generally not supported due to potential environmental damage, safety and user conflict. However, there was support for low key

cycling and the retention of an existing mountain bike track in the south east portion of the Reserve (Figures 10 and 11). Cycling on the Bibbulmun Track is not permitted other than a small section at the eastern end which doubles as an emergency access track.

- The Shire has stated that a formal mountain biking facility in the Reserve, proposed in 2022 is no longer supported.
- Off leash and on leash dog walking areas are shown in Figures 8 and 9.
- The Sheila Hill Memorial Trail is poorly delineated and signposted. Wayfinding signage for the Sheila Hill Memorial trail is missing or in poor condition. Part of the trail shares the alignment of the Bibbulmun Track.
- Some existing assets supporting low-impact recreational activities need formalising and/or upgrading, including signage and car parks (Lights Beach Road and Sheila Hill Trail Head).
- Signage is generally outdated and in poor condition. New signage should reflect a standard approach across the Shire.
- All trailhead signage needs to be updated. Safety information is currently absent from trailheads. Maps of the Reserve should be included in trailhead information.
- Bibbulmun track wayfinding signage is present and mostly in good condition.
- Access control to the Reserve is effective and well supported.

Fire Management

- Firebreak and emergency access tracks within the reserve are crucial for quick access should a fire threaten the reserve or another emergency affect users.
- The northern emergency access track is in good condition with turning and passing areas.
- Emergency access to Monkey Rock and behind Heather Road is highly eroded and unsafe. Drainage and gravel re-sheeting are required to bring these tracks to a serviceable standard.

Culture and Heritage

- Kooryunderup / Mount Hallowell is a significant cultural and heritage site for Traditional Custodians. Wagyl Kaip, in partnership with the Shire of Denmark and the local community, proposes to undertake a cultural heritage survey of the area.

Community Engagement, Research And Education

- There are opportunities to incorporate themed signage with interpretation at key points such as car parks/trailheads, Monkey Rock and the summit of Mount Hallowell (e.g. Cultural heritage, biodiversity, fire and Sheila Hill).

Land Use Planning and Compliance

- Neighbouring landowners are using the Reserve adjacent to Heather Road. Private use of the reserve is less than ideal, with potential weed introduction and other risks associated with the personal use of a public space. However, the use has been long-term, and the Shire will need to work with landowners to develop an acceptable solution.
- The Local Law regarding dogs may need to be updated for Mount Hallowell so that dogs are allowed on the Bibbulmun Track (on leashes) but may be let off leashes in the southeast portion of the Reserve. Refer to Figures 8 and 9 for areas where dogs are permitted.

1 CONTEXT

1.1 LOCATION, NAME AND TENURE

Mount Hallowell is an iconic reserve located 5 kilometres (km) southwest of the town of Denmark, 1.5 km from the coastline and 500 metres (m) from Wilson Inlet (Figure 1). With sweeping views, natural bushland, and majestic granite features, the reserve is much loved and visited by locals and tourists in increasing numbers. It can be accessed from the bordering Ocean Beach Road to the east and Lights Road to the south and is traversed by the Sheila Hill Memorial Trail, which forms a section of the Bibbulmun Track.

Kooryunderup / Mount Hallowell is designated under the *Land Administration Act 1997* and comprises various land parcels, with the largest being Reserve 46618 (Figure 2; Table 1). It is classified as an A Class Reserve, the highest level of protection. To enable amendments, proposals must be advertised and potentially tabled in both Houses of Parliament. The Class A classification is solely intended to safeguard areas of high conservation or significant community value.



Kooryunderup / Mount Hallowell comprises 532.2409 hectares (ha) and has management orders in favour of the Shire of Denmark with the designated purpose of '*Conservation & Recreation*'. The management orders state that the reserve is to be managed in accordance with its Management Plan and used only for the designated purposes. This plan will guide the management of the reserve for the next 10 years.


The summit of Mount Hallowell is contained within Reserve 14239 (Lot 7572 on Deposited Plan (DP) 187145) with an area of 4.0470 ha and a purpose of 'trigonometrical station'. Use of Reserve 14239 should be integrated with should be consistent with the rest of Kooryunderup / Mount Hallowell, in consultation with the Department of Planning, Lands and Heritage (DPLH).

In 2024, the Shire of Denmark, with advice and support from the South West Aboriginal Land and Sea Council (SWALSC), the Wagyl Kaip Southern Noongar Aboriginal Corporation and the Wagyl Kaip Cultural Advice Committee, introduced dual naming of the Reserve as 'Kooryunderup / Mount Hallowell'. Kooryunderup means 'the place of many bush kangaroos'.

TABLE 1: KOORYUNDERUP / MOUNT HALLOWELL DETAILS

RESERVE	AREA	MANAGEMENT ORDERS	PURPOSE	DETAILS
Kooryunderup / Mount Hallowell Reserve 46618	532.2409 ha	Shire of Denmark	Conservation & Recreation	Volume 3083/3118 Folio 97/34.
<p>The following land parcels are not included in this Management Plan, but management should be consistent to complement the goals of the Kooryunderup / Mount Hallowell reserve.</p>				
Mount Hallowell Reserve 14239	4.0470 ha	Western Australian Land Information Authority	Trigonometrical Station	Lot 7572 on DP 187145

RESERVE	AREA	MANAGEMENT ORDERS	PURPOSE	DETAILS
Reserve 48429	9.344 ha		Public Recreation	Reserve Comprises Lot 300 on DP 47512 (J575775)
				
Reserve 32861	4.7684 ha		Public Recreation	Reserve comprises Lot 7633 on Plan 9060 & Lot 500 on DP 61028 (L051413) & Lot 300 on DP 61027 (L112968)
				

RESERVE	AREA	MANAGEMENT ORDERS	PURPOSE	DETAILS
Reserve 35464	2.2147 ha		Public Recreation	Lot 7415 on Plan 12356 and Lot 7785 on Plan 17570
				

1.2 BACKGROUND AND RESERVE HISTORY

A portion of the Mount Hallowell Reserve was originally gazetted as a Timber Reserve in 1913 and later as a Timber and National Park Reserve in 1927. Other areas were vested in the Shire of Denmark for recreational purposes and 27 ha were allocated for sand and gravel extraction.

On 14 May 2002, Reserves Numbers 12182, 14959, 18077, 30080, and 38844, along with vacant crown land south of Location 2897, were amalgamated into one A Class Reserve Number 46618, encompassing Plantagenet Locations 7560 and 8065 for conservation and recreation.

The summit of Mount Hallowell remains designated as Crown Land Reserve No. 14239 (Location 7572) for a trigonometrical station. A trigonometrical station, triangulation pillar, or trig point serves as a fixed surveying station for geodetic surveying and other surveying projects in nearby areas.

When the Reserve was amalgamated in 2002, it was named Mount Hallowell Nature Reserve. The Department of Land Information formally approved the technical conversion to Mount Hallowell Reserve for Reserve Number 46618 on 23 January 2008. According to the *Conservation and Land Management Act 1984*, the term 'Nature Reserve' is now exclusively used for reserves vested with the Department of Biodiversity, Conservation and Attractions (DBCA) for the conservation of flora and/or fauna.

1.3 PREVIOUS MANAGEMENT PLANS

In 1993, the Mount Hallowell Management Committee, composed of Shire Councillors and local residents, prepared a Draft Management Plan which:

- Aimed to manage the Reserve as a conservation priority area.

- Provided for bushwalking with scenic views while maintaining conservation priorities.
- Included a Fire Management Plan created by the Mount Hallowell Fire Management Group.

Following community consultation, the Plan was finalised and adopted by Council in 1995. The three key management goals in the 1993 draft were reiterated, and strategies were devised to meet these goals, with a revision of the Plan set to occur after five years.

In 2003, the Shire formed a community-based committee to review the Plan. Between 2003 and 2004, the Denmark Environment Centre conducted the Mount Hallowell Reserve Survey and Research Project, specifically aimed at providing information to support the goals of the 1995 Management Plan and contribute to its review.

The reviewed Plan was completed in 2006 and adopted by Council as the Mount Hallowell Reserve Management Plan in March 2006. The Plan incorporated information from the Mount Hallowell Reserve Survey and Research Project 2004 and updated other sections.

The flora, fungi, and fauna database developed from the Mount Hallowell Reserve Survey and Research Project 2004 aimed to facilitate measures for protecting and maintaining viable populations of existing flora and fauna species, particularly those with special status.

Some recommendations from these documents have been implemented, some have become redundant and outstanding matters are prioritised in this Plan of 2025.

1.4 PROJECT SCOPE AND OBJECTIVES

The objectives of the management plan review are:

- To review and audit the management actions of the 2008 plan.
- To assess the background information and conduct a literature review.
- To map all existing tracks and trails across the Reserve and identify their uses.
- To redefine the management goals in alignment with the Reserve's purpose of 'Conservation and Recreation'.
- To update management actions relevant to the management goals, opportunities, and constraints for conservation and recreation.

The scope of the management plan review includes:

- The preparation and implementation of a stakeholder engagement strategy.
- Meetings with key stakeholders to gather input on the future management of Kooryunderup / Mount Hallowell.
- The release of a survey to gather broader community input.
- Site visits to the Reserve for assessment, mapping, and planning for future management.
- The preparation of a stakeholder summary report, audit outcomes report, and a draft management plan report for consideration by the Denmark Shire Council.
- The draft management plan will be released for public comment and submissions.

- A final document will be presented to the Denmark Shire Council for adoption.
- The final document will be presented to the State Government for adoption in accordance with the Reserve's A Class status.

1.5 LAND USE AND INFRASTRUCTURE

Current recreational use of the Reserve includes walking, dog walking, nature appreciation, running and hiking. The Bibbulmun Track traverses the Reserve in an east-west direction (Figure 4) and the Sheila Hill Memorial Trail head is located in the east. There are unsanctioned informal mountain bike trails, primarily situated on the lower slopes in the south-eastern section of the Reserve (Figure 5).

Infrastructure in the Reserve includes:

- Emergency and fire access tracks;
- the Bibbulmun Track and the Sheila Hill Memorial Trail;
- Monkey Rock and Mount Hallowell Lookouts; and
- Car parks at Ocean Beach and Lights Beach Roads.

Kooryunderup / Mount Hallowell is reserved for 'Parks and Recreation' under the Shire of Denmark Local Planning Scheme No. 3 (Figure A).

Surrounding land uses and zones (Figure A) include:

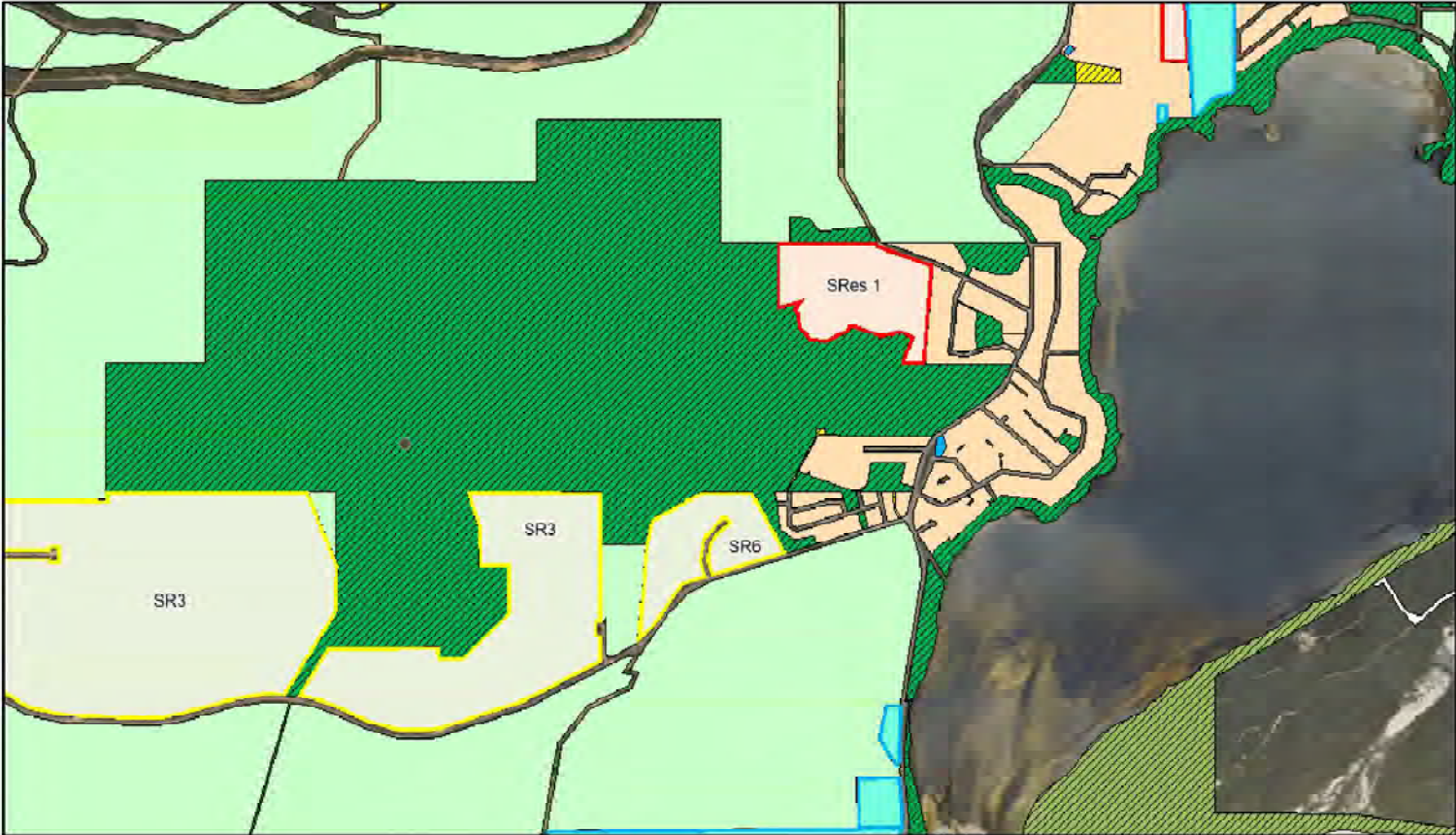
- Residential land to the north, east and southeast (Zoned: Residential).
- Special Residential land to the north (Zoned: Special Residential 1).
- Rural small holdings and bush blocks to the south (Zoned: Special Rural 3 and Rural).
- Rural land to the north and west (Zoned: Rural).
- Wilson Inlet is less than 500 m to the east.

1.6 FIRE HISTORY

Apart from its high biodiversity and conservation values, the Reserve represents long-unburnt vegetation (Christensen and Abbott, 1989). The last reported significant fire over the majority of the Reserve was in 1937.

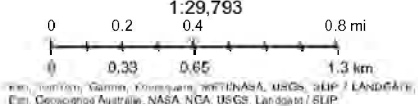
The last managed fire in the reserve was in 1985. Documentary evidence shows that approximately 60-70% of the reserve was burnt with the unburnt sections predominantly the southern facing karri slopes. The map below shows the burn areas.

FIGURE A: SHIRE OF DENMARK LOCAL PLANNING SCHEME NO. 3



12/3/2024, 1:22:50 PM

- Local Planning Scheme - Zones and Reserves (DPLH-071)
- | | | |
|------------------------------------|----------------------|---------------------|
| Commercial | Local road | Rural |
| Drainage and waterbodies | Parks and recreation | Special residential |
| Environmental conservation reserve | Public use | Special rural |
| | Residential | Tourist |



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1.7 ASSESSMENTS AND STUDIES

A range of assessments and studies have been undertaken in the Reserve, including:

- Report on Aboriginal Heritage Survey and Dieback on Ocean Beach and Mount Hallowell Mountain Bike Trail Network (2022).
- BioDiverse Solutions (2022) Vertebrate Fauna Assessment of Mount Hallowell. Prepared for the Shire of Denmark.
- Mount Hallowell Reserve 46618 Dieback Occurrence Survey (Great Southern Bio Logic, January 2021).
- Mount Hallowell Trails Concept Plan (June 2021).
- Flora and Vegetation Survey Report Part Reserve 46618 Mount Hallowell (2020).
- Vertebrate Fauna Assessment of Mount Hallowell (2020).
- Mount Hallowell Proposed Trail Development – public consultation report (2019).
- Structural Plant Community Survey, Mt Hallowell and Wilson Inlet Foreshore Reserves (McQuoid, 2012).
- A Guide to Macrofungi in the Shire of Denmark Mount Hallowell Reserves (2011).
- Wilson Inlet Foreshore & Mount Hallowell Reserves Fauna Survey (2011).
- Shire of Denmark Mount Hallowell Reserve Management Plan (2008).
- Patrick Gillespie (2011) Wilson Inlet Foreshore & Mount Hallowell Reserves Fauna Survey. Prepared for the Shire of Denmark.
- Denmark Environment Centre (2004) Mount Hallowell Survey and Research Project.

1.8 SHIRE OF DENMARK STRATEGIES AND MANAGEMENT FRAMEWORK

This Management Plan considers the Shire of Denmark Governance framework and incorporates concepts, policies, and strategies developed in consultation with the Denmark community. The framework includes:

Shire of Denmark Community Strategic Plan: Our Future 2033 (Shire of Denmark, 2023)

The review and update of the revised Mount Hallowell Reserve Management Plan is consistent with the Shire's Community Strategic Plan: Our Future (2033) which identifies environmental conservation and protection as one of three primary Shire service deliveries and lists the Mount Hallowell Reserve Management Plan as a key existing plan to turn our vision into action by operating as environmental custodians for the future.

Shire of Denmark Corporate Business Plan 2024 – 2028 (Shire of Denmark, 2024)

The Shire of Denmark Corporate Business Plan 2024 – 2028 identifies the review of the Mount Hallowell Management Plan for 2024/25.

Shire of Denmark Sustainability Strategy 2021 – 2031 (Shire of Denmark, 2021)

The Shire’s Sustainability Strategy (2021-2031) supports protecting and enhancing natural systems with a Key Land and Nature objective to “Implement responsible and sustainable practices through policy development and land-use planning.”

The Sustainability Strategy states:

We will protect and enhance our natural systems vital to our local community's sustainability. Strategies include:

- Implementation of responsible and sustainable practices through policy development and land-use planning.
- Prioritising protection of natural bushland habitats and ecosystems, including protection of waterways for nutrient control in agriculture, salinity control and riparian vegetation.
- Revegetation and rehabilitation of degraded environments.
- Supporting education of the broader community regarding protection of the natural environment.

2 EXISTING ENVIRONMENT

2.1 CLIMATE

The climate in the Denmark area is characterised as Mediterranean, with cool, wet winters and warm, dry summers (Figure B). The long-term average rainfall recorded at the Denmark Research Station from 1951 to 1984 is 1,000.1 mm (Figure C). However, slightly higher amounts can be expected on Mount Hallowell due to localised effects.

The southwest region of Western Australia is already experiencing the impacts of climate change, including declining annual rainfall, reduced wet season (winter and spring) rainfall, increased intensity of rainfall events, and a higher incidence of drought. These changes result in lower soil moisture, decreased runoff, and reduced groundwater recharge (DWER, 2021).

The decline in rainfall and runoff is likely to affect species that thrive in wet environments. Additionally, decreased rainfall heightens the risk of fire. Effective management of the Reserve in response to a changing climate must focus on building resilience by mitigating threats such as weeds, dieback, and other controllable stressors.

FIGURE B: AVERAGE HIGH AND LOW TEMPERATURES

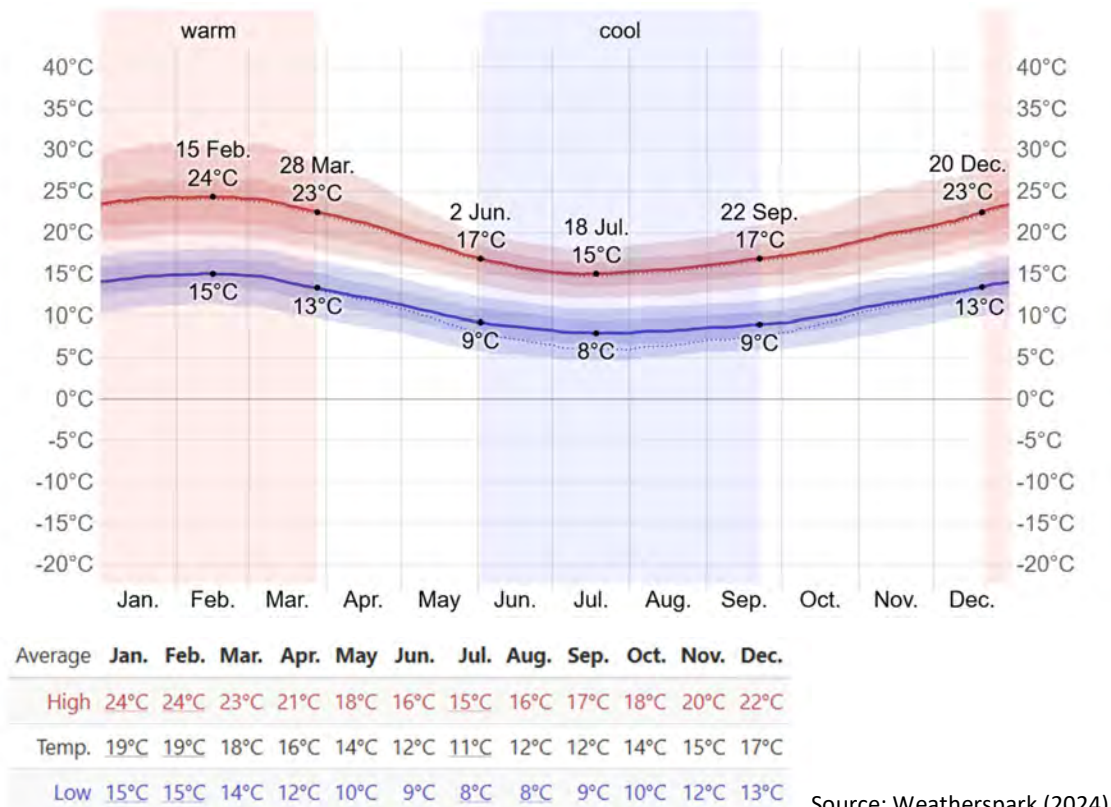
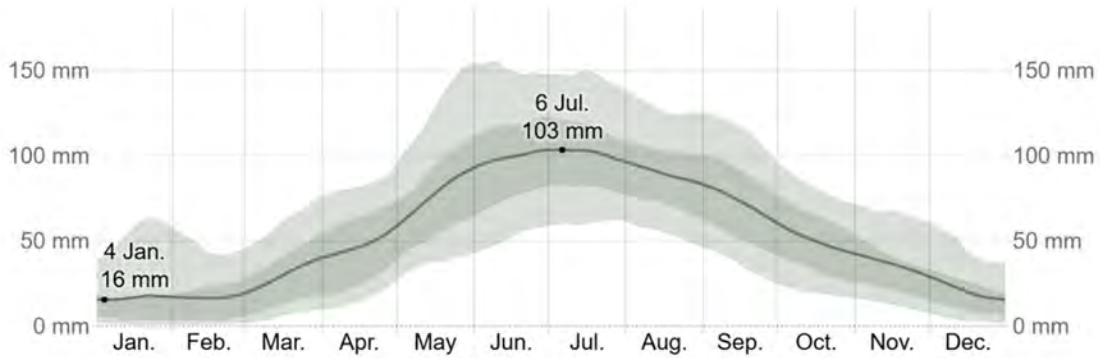


FIGURE C: AVERAGE MONTHLY RAINFALL IN DENMARK



Note: The average rainfall (solid line) accumulated over the course of a sliding 31-day period centred on the day in question, with 25th to 75th and 10th to 90th percentile bands. Source: Weatherspark (2024).

The six Noongar seasons – Birak, Bunuru, Djeran, Makuru, Djilba, and Kamarang – represent the annual seasonal changes observed across the southwest of Western Australia, indicated by weather patterns, food availability and shifts in the activity or presence of flora and fauna. These seasons reflect the weather experience in Denmark and serve as a valuable tool for planning management activities.



Source: Australia’s South West: Six Seasons of the South West. <https://australiassouthwest.com/six-seasons-of-the-south-west/>

2.2 LANDFORM, GEOLOGY AND SOILS

Stretching from north to south, the Kooryunderup / Mount Hallowell Reserve rises from the Little River valley at 20 metres above sea level (metres Australian Height Datum - m AHD) and features sandy soils up to 75 m AHD. These sandy soils comprise moist and peaty flats along with creek valleys. Above

75 m AHD, the Reserve ascends rapidly through loamy gravel soils, which sustain tall forests (Figure 3; Table 2).

On the higher slopes, lateritic gravel soils with numerous granite outcrops are present. The most notable massive outcrops are Monkey Rock and the summit of Mount Hallowell, which ascends to nearly 300 m AHD. Smaller granite outcrops and surface granite are predominantly concealed by vegetation.

Laterite is an igneous rock that forms through the solidification of cooled magma (molten rock), weathering to a red-brown gravelly sandy soil. The granite bedrock in this area is approximately 2,700 million years old. The large granite batholiths (the significant granite outcrops, formed by extensive volumes of molten granite) intruded beneath the surface millions of years ago and have since been exposed due to the erosion of overlying soils.

The immense age of the landscape, the underlying geology, and its aspect have given rise to varied soils and microclimates in the Reserve, which in turn have resulted in diverse floral associations.

TABLE 2: SOIL LANDSCAPE DESCRIPTIONS

CODE	NAME	DESCRIPTION
254WhHA	Hazelvale subsystem	Narrow sandy plains; slight stream incision. Humus podzols on crests of spurs; Teatree scrub. Yellow duplex soils on valley flanks; Jarrah-Marri low forest. Peaty podzols on minor valley floors; sedges and reeds.
254WhKYs	Keystone podzols phase	Podzols (typical sequence of organic topsoil with leached grey-white subsoil with iron-rich horizon below); Teatree heath and Jarrah woodland.
254WhKYb	Keystone brown duplex phase	Brown gravelly duplex soils and red or yellow earths; much laterite. Marri-Karri-Red Tingle-Yellow Tingle forest.
254WhKYg	Keystone granite phase	Granite outcrop.
254NkMRp	Meerup podzols over calcareous sand phase	Podzols over calcareous sand; Banksia-Bulich-Yate woodland.
254NkMRf	Meerup podzols on interdune plains phase	Podzols on interdune plains; Banksia-Bulich-Yate woodland.
254BrOW	Owingup subsystem	Plains with swamps, lunettes and dunes. Yellow solonetzic soils, organic loams and diatomaceous earth; Wattle-Paperbark thickets, Teatree heath and reeds. Podzols on dunes; Banksia-Sheoak woodland.

Source: Landgate, 2025 (DPIRD-027 - South Coast and hinterland landforms and soils)

2.3 HYDROLOGY

The Reserve lies within the Denmark Coast Catchment area and the Warren-Denmark Hydrological Zone (HZ19_WD), which is described as *“Rises in a series of broad benches from the Southern Ocean north to the Blackwood Valley. Deeply weathered granite and gneiss overlain by Tertiary and Quaternary sediments in the south. Swampy in places”* (DPIRD, 2020a).

The Reserve is not within a Public Drinking Water Source Area (Landgate, 2025).

Several first-order creeks flow northwards towards Little River from the northern slopes of Mount Hallowell (Figure 4). These creeks provide important habitat and are sensitive to disturbance. No permanent standing water bodies occur within the Reserve.

2.4 VEGETATION

Kooryunderup / Mount Hallowell lies within the Warren Bioregion and Warren (WAR01) subregion. Hearn *et al.* (2002) describes the Warren Bioregion as ‘dissected undulating country of the Leeuwin Complex, Southern Perth Basin (Blackwood Plateau), South-West intrusions of the Yilgarn Craton and western parts of the Albany Orogen with loamy soils supporting Karri forest, laterites supporting Jarrah-Marri forest, leached sandy soils in depressions and plains supporting low Jarrah woodlands and paperbark/sedge swamps, and Holocene marine dunes with *Agonis flexuosa* and *Banksia* woodlands and heaths’.

The vegetation was mapped on a broad scale by J.S. Beard (Shepherd *et al.* 2002) in the 1970s, when a system was devised for state-wide mapping and vegetation classification based on geographic, geological, soil, climate structure, life form and vegetation characteristics (Sandiford and Barrett, 2010). Vegetation units were regarded as associations and were grouped into Vegetation Systems, representing a particular pattern of association distribution within a given area. A GIS search of J.S. Beard’s vegetation classification (Beard *et al.* 2013) places the Reserve within two Systems and Vegetation Associations (Landgate, 2025).

1. **System Association Name:** Denmark.

- **Vegetation Association Number:** 1.
- **Vegetation Description:** Tall forest or Tall woodland.
- **Floristic Description:** Mainly karri *Eucalyptus diversicolor* or Tuart *E. gomphocephala*.
- **Remnant Vegetation by Beard Association Rarity in LGA:** 48.06% remaining (Government of WA, 2019).
- **Remnant Vegetation by Beard Association Rarity in IBRA Region:** 77.91% remaining (Government of WA, 2019).

2. **System Association Name:** Denmark.

- **Vegetation Association Number:** 14.
- **Vegetation Description:** Low forest, woodland or low woodland with scattered trees.
- **Floristic Description:** Jarrah, *Banksia* or Casuarina *Eucalyptus marginata*, *Banksia spp.*, *Allocasuarina spp.*
- **Remnant Vegetation by Beard Association Rarity in LGA:** 90.32% remaining (Government of WA, 2019).
- **Remnant Vegetation by Beard Association Rarity in IBRA Region:** 63.35% remaining (Government of WA, 2019).

The Mount Hallowell Survey and Research Project (Denmark Environment Centre, 2004) indicated that the Reserve comprises a variety of vegetation types, including tall open forest of *Eucalyptus*

diversicolor (karri) and *Allocasuarina decussata* (sheoak); closed forest of *E. guilfoylei* (yellow tingle) and *E. jacksonii* (red tingle); woodland of *Eucalyptus marginata* (jarrah), *E. patens* (blackbutt), *Allocasuarina fraseriana* (sheoak), and *Banksia grandis*; *Corymbia calophylla* (marri), *E. megacarpa* (bullich), and *Agonis flexuosa* (Peppermint) on the lower slopes at the base of granite outcrops; and closed heath of Myrtaceae and Proteaceae species.

The sandy soils in the north of the Reserve with elevations below 75 m include moist and peaty flats and creek valleys. The vegetation on these lower slopes is a mosaic of tall Marri/Jarrah forest, low Jarrah/Casuarina and Banksia Woodlands, moist shrublands and sedgelands. The creeks are first-order with Yarri (*Eucalyptus patens*), and taller Marri, Jarrah and Karri trees growing in the small moist fertile valleys. Above 75 m, the Reserve rises rapidly through loamy gravel soils, which support tall forest. Jarrah and Marri dominate the lower part of this section while Karri and Karri/Marri forest dominate the higher reaches of the northern and southern slopes. Granite outcrops are numerous on the higher slopes, some being visible from surrounding vantage points while smaller granite outcrops and surface granite are often hidden by vegetation. On the southern boundary of the Reserve, Jarrah, Marri and Casuarina dominate the vegetation in a narrow belt of transition from Karri forest. The sandy dune country south of Lights Road is dominated by Peppermint (*Agonis flexuosa*).

The granite batholiths and outcrops, with elevations of nearly 300 m, create special niches for vegetation on the rock and in the surrounding fringes. These niches around the granite outcrops on the Hallowell Reserve are created by areas of shallow soil, pockets of deep soil, water drainage, nutrient from rock catchments, and microclimates caused by aspect and shelter. These soil conditions and microclimates differ from one outcrop to another, resulting in unique floral associations. Arnica (*Taxandria marginata*) is present on many outcrops but absent on others. Blind Grass (*Stypandra glauca*) is similarly common but not omnipresent on the granite outcrops. Surrounding Yate trees are a feature of the granite summit and some other outcrops but absent from others where *Agonis flexuosa* or *Allocasuarina decussata* (Karri Oak) is a dominant fringing component of the vegetation.

The Mount Hallowell Survey and Research Project (Denmark Environment Centre, 2004) collected detailed flora information that is still relevant today. This list was combined with other flora assessments, including a citizen science Bioblitz in 2023 (Appendix 1). The vegetation types identified during the 2004 survey are listed in Table 3.

The vegetation in Kooryunderup / Mount Hallowell is classified as being in 'Excellent' condition, with small areas in 'Degraded' condition. There is evidence of human impact through walk and bike trails, particularly within the *Eucalyptus diversicolor* Open Forest, in the eastern portion and the *Eucalyptus marginata*/*Corymbia calophylla* Open Forest in the southeastern area. Some of these areas are part of the existing signposted walk trails. There are unauthorised mountain bike trails (jumps, banks where bikes turn at speed).

No vegetation types within the Reserve are classified as Threatened or Priority ecological communities (TEC or PEC).

TABLE 3: VEGETATION TYPES

VEGETATION DESCRIPTION	KEY SPECIES
Tall Forest (Forest > 20 m tall)	
<p><i>Pure Karri</i></p> <p>Pure stands of Karri exists in large areas of the reserve. Within this forest type are small areas dominated by Sheoak (<i>Allocasuarina decussata</i>), Peppermint (<i>Agonis flexuosa</i>), and Karri Hazel (<i>Trymalium floribundum</i>).</p>	<p><i>Indicative species: Acacia pentadenia, Dampiera linearis, Scaevola striata, Agonis flexuosa, Hardenbergia comptoniana, Sollya heterophylla, Allocasuarina decussata, Hibbertia furfuraceae, Styliidium sp., Billardiera floribunda, Lasiopetalum floribundum, Thomasia heterophylla, Boronia gracilipes, Leucopogon propinquus, Tremandra stelligera, Cassytha glabella, Leucopogon verticillatus, Trymalium floribundum, Chorilaena quercifolia, Ozothamnus ramosus, Clematis pubescens, Paraserianthes lapantha</i></p>
<p><i>Karri/Marri</i></p> <p>Typically, a very tall forest with a very similar understorey to the pure Karri forest. Marri is a significant component of the upper canopy.</p>	<p><i>Corymbia calophylla, Acacia pentadenia, Dampiera linearis, Scaevola striata, Agonis flexuosa, Hardenbergia comptoniana, Sollya heterophylla, Allocasuarina decussata, Hibbertia furfuraceae, Styliidium sp., Billardiera floribunda, Lasiopetalum floribundum, Thomasia heterophylla, Boronia gracilipes, Leucopogon propinquus, Tremandra stelligera, Cassytha glabella, Leucopogon verticillatus, Trymalium floribundum, Chorilaena quercifolia, Ozothamnus ramosus, Clematis pubescens, Paraserianthes lapantha</i></p>
<p><i>Jarrah/Marri/Karri</i></p> <p>Some mixed tree areas are typically found in belts between the Karri and Marri/Jarrah forest. Understorey plants are also mixed between those typical of the forest types, but tend more to the Karri understorey.</p>	
<p><i>Jarrah/Marri</i></p> <p>Located primarily on the mid-slope of the northern and eastern slope aspect. These forests have a diverse understorey.</p>	<p><i>Acacia browniana var. obscura, Dampiera hederaceae, Persoonia longifolia, Acacia myrtifolia, Banksia serra, Petrophile diversifolia, Agonis theiformis, Eucalyptus marginata, Podocarpus drouynianus, Allocasuarina fraseriana, Hakea amplexicaulis, Taxandria parviceps, Banksia grandis, Hibbertia furfuraceae, Xanthosia rotundifolia, Bossiaea linophylla, Macrozamia riedlei, Chorizema retrorsum, Hypocalymma strictum, Corymbia calophylla, Monotoca tamariscina</i></p>
Medium Forest	
<p>Jarrah/Marri - these medium forests occupy the gravelly soils above the sands and winter wet flats. The understorey is varied. <i>Allocasuarina fraseriana</i> and <i>Banksia grandis</i> are typical lower canopy plants in this plant community type.</p>	<p><i>Acacia myrtifolia, Acacia pentadenia, Agonis parviceps, Agonis theiformis, Anarthria prolifera, Hakea amplexicaulis, Macrozamia riedlei, Mesomelaena tetragon, Thomasia integrifolia, Xanthorrhoea preissii</i></p>
Medium Forest (Forest between 10 m and 20 m tall)	
<p><i>Jarrah</i></p>	<p><i>Acacia myrtifolia, Eucalyptus marginata, Banksia llicifolia, Lepidosperma sp., Corymbia calophylla, Taxandria parviceps</i></p>

VEGETATION DESCRIPTION	KEY SPECIES
<p>The Jarrah woodlands exist as moderately thick stands and as sparse woodland with sedge and <i>Agonis</i> understory. Where Jarrah is less than 5% of the total canopy, the vegetation type is a shrubland with scattered tree occurrence.</p>	
<p><i>Jarrah/Marri</i></p> <p>Often existing adjacent to the Jarrah/Marri forest types these woodlands indicated the change from gravel soils to poorer sandy soils.</p>	<p><i>Acacia pentadenia, Astartea sp. (aff. fascicularis), Adenanthos cuneatus, Banksia grandis, Agonis theiformis, Johnsonia lupulina, Allocasuarina fraseriana, Taxandria parviceps</i></p>
Medium/Low forest (Forest between 5 & 10 m tall)	
<p><i>Jarrah/Marri</i></p>	<p><i>Acacia pentadenia, Astartea sp. (aff. fascicularis), Adenanthos cuneatus, Banksia grandis, Agonis theiformis, Johnsonia lupulina, Allocasuarina fraseriana, Taxandria parviceps</i></p>
<p><i>Allocasuarina/Jarrah</i></p>	<p><i>Acacia myrtifolia, Taxandria parviceps, Dasypogon bromeliifolius, Xanthorrhoea preissii, Persoonia longifolia</i></p>
Low Forest (< 5 m)	
<p><i>Allocasuarina/Jarrah</i></p> <p>Sedge and rush spp. are dominant understorey in these areas of woodland.</p>	<p><i>Acacia myrtifolia, Taxandria parviceps, Dasypogon bromeliifolius, Xanthorrhoea preissii, Persoonia longifolia</i></p>
<p><i>Allocasuarina/Banksia</i></p> <p>These woodlands exist on the nutrient poor sandy soils. The tree species are all Dieback susceptible and are found within these moist sandy flats where Dieback incursions are the most common.</p>	<p><i>Allocasuarina fraseriana, Banksia quercifolia, Banksia grandis, Hypocalymma strictum, Banksia ilicifolia</i></p>
Woodland (As for Low Forest but < 30 % tree cover)	
	<ul style="list-style-type: none"> • Allocasuarina • Jarrah • Jarrah/Marri/Banksia
Shrubland (< 5% tree cover)	
<p>The shrublands have a similar composition but varied dominant species mixes with different habitat niches.</p> <p>Dominant species:</p>	<p><i>Other species:</i></p> <p><i>Acacia myrtifolia, Adenanthos cuneatus, Agonis theiformis, Andersonia caerulea, Astartea fascicularis, Beaufortia sparsa, Boronia molloyae, Callistemon glauca, Cassytha glabella,</i></p>

VEGETATION DESCRIPTION	KEY SPECIES
<ul style="list-style-type: none"> • <i>Agonis/Beaufortia</i> • <i>Agonis/Astartea</i> • <i>Agonis/Callistemon</i> • <i>Agonis/Jarrah/Marri</i> • <i>Agonis/Kunzea</i> • <i>Agonis/Xanthorrhoea</i> 	<p><i>Hypocalymma strictum, Kunzea sulphurea, Stackhousia monogyna, Taxandria parviceps, Thelymitra antennifera, Thelymitra flexuosa</i></p>
Sedgeland	
<p>Occupying the moist flats, sedgelands are typically present as an understorey in shrublands and woodland areas. One exception was notable and in this area the sedges formed a thick low carpet</p>	<p><i>Anarthria prolifera, Lepidosperma angustatum, Anarthria scabra, Lepidosperma effusum, Dasyogon bromeliifolius, Lepidosperma gladiatum, Evandra aristata, Mesomelaena tetragona</i></p>
Monadnocks and granite outcrops	
<p>The granite outcrops are a dominant feature of the Mount Hallowell Reserve. The typical monadnock is a large protuberance visible from surrounding vantage points. These are impressive features when viewed proximately. The smaller granite outcrops are widespread throughout the Reserve and vary from exposed sheets to large boulders the height of medium trees. The granite outcrops create special niches for vegetation, both on the rock and in the surrounding fringes. These niches around the granite outcrops on the Mount Hallowell Reserve are created by:</p> <ul style="list-style-type: none"> • areas of shallow soil • pockets of deep soil • water drainage • nutrient from rock catchments • microclimates caused by aspect and shelter <p>These soil conditions and micro-climates differ from one outcrop to another and result in unique floral associations. <i>Agonis marginata</i> is present on many outcrops but absent on others. <i>Stypandra glauca</i> is similarly common but not omnipresent on the granite outcrops. Surrounding Yate (<i>Eucalyptus cornuta</i>) trees are a feature of the granite summit and some other outcrops but absent from others where <i>Agonis flexuosa</i> or <i>Allocasuarina decussata</i> is a dominant fringing component of the vegetation.</p>	<p><i>Agonis flexuosa, Allocasuarina decussata, Andersonia sprengelioides, Bossiaea linophylla, Corymbia calophylla, Eucalyptus cornuta, Eucalyptus diversicolor, Eucalyptus megacarpa, Eutaxia obovate, Hibbertia furfuraceae, Lepidosperma sp., Leucopogon revolutus, Stypandra glauca, Taxandria marginata, Taxandria parviceps</i></p> <p>Monkey Rock and surrounds:</p> <p><i>Agonis flexuosa, Allocasuarina decussata, Bossiaea linophylla, Corymbia calophylla, Eucalyptus cornuta, Eucalyptus marginata, Eutaxia obovate, Lepidosperma sp., Leucopogon revolutus, Stypandra glauca, Taxandria linearifolia, Taxandria marginata, Taxandria parviceps</i></p> <p>Kooryunderup / Mount Hallowell and surrounds:</p> <p><i>Agonis flexuosa, Allocasuarina decussata, Bossiaea linophylla, a Corymbia calophylla, Eucalyptus cornuta, Eucalyptus marginata, Eutaxia obovate, Lepidosperma sp., Leucopogon revolutus, Stypandra glauca, Taxandria linearifolia, Taxandria marginata, Taxandria parviceps</i></p>

Kooryunderup / Mount Hallowell Management Plan 2025 - 2035, Shire of Denmark, WA

VEGETATION DESCRIPTION	KEY SPECIES
<p>The smaller outcrops have a less significant effect on the surrounding vegetation composition which reflects soil type and landscape position. These outcrops are predominantly in the areas designated in this report as Karri and Karri/Marri Tall Forest areas.</p>	

2.5 FLORA

2.5.1 Flora Databases

Information provided by the DBCA (NatureMap, 2024) indicates there are 1,007 records of flora species within 10 km of Kooryunderup / Mount Hallowell as indicated in Table 4.

TABLE 4: NUMBER OF PLANT SPECIES WITHIN 10 KM

GROUP	NUMBER OF SPECIES
Alga	3
Dicot	643
Fern	7
Gymno	2
Liverwort	22
Monocot	277
Moss	53

Source: NatureMap, 2024

2.5.2 Surveys

Biodiverse Solutions (2020) undertook a reconnaissance flora and vegetation survey for Mount Hallowell, comprising 21.27 ha in the southeastern portion of the Reserve, and identified 101 native flora species.

A Bioblitz citizen science event was held at Kooryunderup / Mount Hallowell in 2023 (Denmark Environment Centre, 2023), which recorded 467 flora species (Appendix 1), including species identified in the 2004 survey.

To date, 467 flora species have been documented within the Reserve. Of these, 347 were listed in the 2008 Mount Hallowell Reserve Management Plan, and 120 additional flora species have been documented subsequently as part of the Bioblitz and the Mount Hallowell (Kooryunderup) Reserve species observations on iNaturalist.

2.5.3 Conservation Significant Species

NatureMaps indicates that there are six threatened flora species listed under the *Biodiversity Conservation Act 2016* within 10 km of Kooryunderup / Mount Hallowell (Table 5). In addition, there are:

- Priority 1 species: 2;
- Priority 2 species: 7;
- Priority 3 species: 12; and
- Priority 4 species: 22.

The southeastern portion of the Reserve was identified with a Priority 4 species, *Banksia serra* (Biodiverse Solutions, 2020).

In 2023, the citizen science Bioblitz recorded seven Priority species within the Reserve:

- Priority 2 flora species: *Lepyrodia extensa*;
- Priority 3 flora species: *Anthocercis sylvicola* (Tailflower);
- Priority 3 flora species: *Goodenia* sp. South Coast;
- Priority 3 flora species: *Leucopogon alternifolius*;
- Priority 4 flora species: *Banksia serra* (Serrate-leaved Dryandra);
- Priority 4 flora species: *Drosera fimbriata* (Manypeaks Sundew); and
- Priority 4 flora species: *Pleurophascum occidentale* (Western Giant-leaved Moss).

No Threatened species have been recorded in the Reserve.

Definitions for Threatened and Priority species are included in Appendix 2.

TABLE 5: CONSERVATION SIGNIFICANT FLORA WITHIN 10 KM

SPECIES	CONSERVATION STATUS		WA RANK
<i>Goodenia radicans</i>	Priority	1	
<i>Stylidium</i> sp. Kordabup (A.R. Annels 1660)	Priority	1	
<i>Caladenia applanata</i> subsp. <i>erubescens</i>	Priority	2	
<i>Diuris heberlei</i>	Priority	2	
<i>Drepanocladus aduncus</i>	Priority	2	
<i>Amanita walpolei</i>	Priority	2	
<i>Rytidosperma racemosum</i> var. <i>racemosum</i>	Priority	2	
<i>Andersonia</i> sp. <i>Virolens</i> (G.J. Keighery 12000)	Priority	3	
<i>Anthocercis sylvicola</i>	Priority	3	
<i>Borya longiscapa</i>	Priority	3	
<i>Lasiopetalum</i> sp. Denmark (B.G. Hammersley 2012)	Priority	3	
<i>Amanita drummondii</i>	Priority	3	
<i>Amanita fibrillopes</i>	Priority	3	
<i>Andersonia</i> sp. <i>Amabile</i> (N. Gibson & M. Lyons 355)	Priority	3	
<i>Netrostylis</i> sp. Blackwood River (A.R. Annels 3043)	Priority	3	
<i>Synaphea incurve</i>	Priority	3	
<i>Banksia sessilis</i> var. <i>cordata</i>	Priority	4	
<i>Boronia virgata</i>	Priority	4	
<i>Corysanthes limpida</i>	Priority	4	
<i>Drosera fimbriata</i>	Priority	4	

SPECIES	CONSERVATION STATUS		WA RANK
<i>Eucalyptus virginea</i>	Priority	4	
<i>Gahnia sclerioides</i>	Priority	4	
<i>Microtis pulchella</i>	Priority	4	
<i>Pleurophascum occidentale</i>	Priority	4	
<i>Thomasia quercifolia</i>	Priority	4	
<i>Banksia serra</i>	Priority	4	
<i>Lepidium pseudotasmanicum</i>	Priority	4	
<i>Thomasia solanacea</i>	Priority	4	
<i>Xanthosia eichleri</i>	Priority	4	
<i>Kennedia glabrata</i>		Threatened	Vulnerable
<i>Microtis globula</i>		Threatened	Endangered
<i>Commersonia apella</i>		Threatened	
<i>Grevillea fuscolutea</i>		Threatened	
<i>Isopogon buxifolius</i>		Threatened	

Source: NatureMap, 2025

2.6 FAUNA

2.6.1 Fauna Databases

The Mount Hallowell Reserves represent a variety of fauna habitats influenced by topography and soil types (granitic outcrops through clay slopes to deep sand and peat swamps). The higher slopes, particularly on the eastern and southern sides, are dominated by Karri (*Eucalyptus diversicolor*) with pockets of Sheoak (*Casuarina* spp.), while the lower slopes and northern slopes are more typically Jarrah (*Eucalyptus marginata*), Marri (*Corymbia calophylla*), *Banksia grandis*, *Banksia ilicifolia* and Sheoak (Gillespie, 2011).

Information provided by the DBCA (NatureMap, 2024) indicates there are 444 records of fauna species within 10 km of Kooryunderup / Mount Hallowell, as grouped in Table 6.

TABLE 6: NUMBER OF FAUNA SPECIES WITHIN 10 KM

GROUP	NUMBER OF SPECIES
Amphibians (frogs)	8
Invertebrates (insects, spiders, molluscs, worms, crayfish)	111
Reptiles	23
Birds	218
Fish (includes Wilson Inlet, adjacent waterways and Southern Ocean)	55
Mammals	29

Source: NatureMap, 2024

2.6.2 Surveys

To date, 270 fauna species have been documented within the Reserve. Many were listed in the 2008 Management Plan. However, additional fauna species have been documented subsequently as part of the Mount Hallowell Bioblitz and the Kooryunderup / Mount Hallowell Reserve species observations on iNaturalist.

A Bioblitz citizen science event was held at Kooryunderup / Mount Hallowell in 2023 (Denmark Environment Centre, 2023). The event recorded 106 insects, 34 spiders, five frogs, 12 reptiles, 82 birds, 14 native mammal species, and 12 'other vertebrate' species.

A list of species is provided in Appendix 3.

2.6.3 Conservation Significant Species

The Commonwealth's *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* and WA's *Biodiversity Conservation (BC) Act 2016* (Department of Biodiversity, Conservation and Attractions DBCA, 2023) provide a listing of threatened fauna species. Fauna species that are poorly known, rare, near threatened, or others in need of monitoring are listed under the DBCA Priority List.

NatureMap indicates that there are 42 records of Threatened or Migratory species listed under the *Biodiversity Conservation Act 2016* within 10 km of Kooryunderup / Mount Hallowell (Table 7). In addition, there are:

- Priority 1 species: 0
- Priority 2 species: 2
- Priority 3 species: 1
- Priority 4 species: 5

Definitions for Threatened and Priority species are described in Appendix 2.

TABLE 7: CONSERVATION SIGNIFICANT FAUNA WITHIN 10 KM

TAXON	COMMON NAME	CLASS	WA STATUS	EPBC STATU
<i>Thalassarche chlororhynchos</i>	Atlantic yellow-nosed albatross	Bird	VU	MI
<i>Limosa lapponica</i>	bar-tailed godwit	Bird	MI	MI
<i>Zanda baudinii</i>	Baudin's cockatoo	Bird	EN	EN
<i>Ixobrychus flavicollis australis</i> (southwest subpopulation)	black bittern (southwest subpopulation)	Bird	P2	
<i>Thalassarche melanophris</i>	black-browed albatross	Bird	EN	VU & MI
<i>Oxyura australis</i>	blue-billed duck	Bird	P4	
<i>Zanda latirostris</i>	Carnaby's cockatoo	Bird	EN	EN
<i>Hydroprogne caspia</i>	Caspian tern	Bird	MI	MI
<i>Dasyurus geoffroii</i>	chuditch, western quoll	Mammal	VU	VU
<i>Tringa nebularia</i>	common greenshank	Bird	MI	MI

TAXON	COMMON NAME	CLASS	WA STATUS	EPBC STATU
<i>Actitis hypoleucos</i>	common sandpiper	Bird	MI	MI
<i>Sterna hirundo</i>	common tern	Bird	MI	MI
<i>Thalasseus bergii</i>	crested tern	Bird	MI	MI
<i>Calidris ferruginea</i>	curlew sandpiper	Bird	CR	CR & MI
<i>Sternula nereis nereis</i>	fairy tern	Bird	VU	VU
<i>Ardenna carneipes</i>	flesh-footed shearwater	Bird	VU	MI
<i>Calyptorhynchus banksii naso</i>	forest red-tailed black cockatoo	Bird	VU	VU
<i>Calidris tenuirostris</i>	great knot	Bird	CR	CR & MI
<i>Charadrius leschenaultii</i>	greater sand plover, large sand plover	Bird	VU	VU & MI
<i>Pluvialis squatarola</i>	grey plover	Bird	MI	MI
<i>Tringa brevipes</i>	grey-tailed tattler	Bird	MI & P4	MI
<i>Thinornis cucullatus</i>	hooded plover, hooded dotterel	Bird	P4	
<i>Puffinus huttoni</i>	Hutton's shearwater	Bird	EN	
<i>Calidris subminuta</i>	long-toed stint	Bird	MI	MI
<i>Zephyrarchaea mainae</i>	Main's assassin spider	Invertebrate	VU	
<i>Leipoa ocellata</i>	malleefowl	Bird	VU	VU
<i>Pandion haliaetus</i>	osprey	Bird	MI	MI
<i>Pluvialis fulva</i>	Pacific golden plover	Bird	MI	MI
<i>Falco peregrinus</i>	peregrine falcon	Bird	OS	
<i>Geotria australis</i>	pouched lamprey	Fish	P3	
<i>Isoodon fusciventer</i>	quenda, southwestern brown bandicoot	Mammal	P4	
<i>Setonix brachyurus</i>	quokka	Mammal	VU	VU
<i>Calidris canutus</i>	red knot	Bird	EN	EN & MI
<i>Calidris ruficollis</i>	red-necked stint	Bird	MI	MI
<i>Arenaria interpres</i>	ruddy turnstone	Bird	MI	MI
<i>Calidris alba</i>	sanderling	Bird	MI	MI
<i>Calidris acuminata</i>	sharp-tailed sandpiper	Bird	MI	MI
<i>Elapognathus minor</i>	short-nosed snake	Reptile	P2	
<i>Ardenna tenuirostris</i>	short-tailed shearwater	Bird	MI	MI
<i>Phascogale tapoatafa wambenger</i>	south-western brush-tailed phascogale, wambenger	Mammal	CD	
<i>Physeter macrocephalus</i>	sperm whale	Mammal	VU	MI

TAXON	COMMON NAME	CLASS	WA STATUS	EPBC STATU
<i>Zephyrarchaea melindae</i>	Toolbrunup assassin spider	Invertebrate	VU	
<i>Hydromys chrysogaster</i>	water-rat, rakali	Mammal	P4	
<i>Cynotelopus notabilis</i>	Western Australian pill millipede	Invertebrate	EN	
<i>Dasyornis longirostris</i>	western bristlebird	Bird	EN	EN
<i>Notamacropus irma</i>	western brush wallaby	Mammal	P4	
<i>Pezoporus flaviventris</i>	western ground parrot	Bird	CR	CR
<i>Pseudocheirus occidentalis</i>	western ringtail possum, ngwayir	Mammal	CR	CR
<i>Zanda</i> sp. 'white-tailed black cockatoo'	white-tailed black cockatoo	Bird	EN	EN
<i>Chlidonias leucopterus</i>	white-winged black tern	Bird	MI	MI

Source: NatureMap, 2024. Note: Marine species such as whales and seals have been removed.

Sanders (2020) prepared a Vertebrate Fauna Assessment of Mount Hallowell Reserve for the southeastern portion of the Reserve. The survey indicated that the following conservation significant species were present:

- Baudin's black cockatoo (Threatened);
- Forest Red-tailed black cockatoo (Threatened); and
- Osprey (not threatened but considered significant).

The habitat assessment confirmed the potential presence of habitat for quokka and western ringtail possum, although no signs were found owing to the dense vegetation.

Several fauna species listed under the EPBC Act, BC Act, and Priority list are known to occur in the Kooryunderup / Mount Hallowell Reserve (Department of Climate Change, Environment, Energy and Water (DCCEEW), 2025; DBCA, 2025).

There are six threatened fauna species documented within the Kooryunderup / Mount Hallowell Reserve. These include:

- Baudin's Cockatoo (*Zanda baudinii*) Njoolark (Endangered, WA and Nationally);
- Carnaby's Cockatoo (*Zanda latirostris*) Njoolark (Endangered, WA and Nationally);
- WA Pill Millipede (*Cynotelopus notabilis*) (Endangered, WA);
- Forest Red-tailed Black-cockatoo (*Calyptorhynchus banksii naso*) Karrak (Vulnerable, WA);
- Main's Assassin Spider (*Zephyrarchaea mainae*) (Vulnerable, WA); and
- South-western Brush-tailed Phascogale (*Phascogale tapoatafa wambenger*) (Conservation dependent, WA).

Birdlife Australia and the Denmark Bird Group have advised that Black Cockatoos, including the Critically Endangered Carnaby's Black Cockatoo have been recorded nesting in the Reserve.

The Southwestern Brown Bandicoot (*Isoodon fusciventer*) and Western False Pipistrelle (*Falsistrellus mackenziei*) are listed as Priority 4 species and present within the Reserve.

The Reserve is also home to numerous endemic fauna species with limited distributions and specific habitat requirements that occur only in the southwest of Western Australia.

2.7 FUNGI AND OTHER LIFE FORMS

Lifeforms such as slime mould, fungi and lichen are poorly known and understood compared to other species. However, they play a very important role in the recycling of nutrients and soil production.

Some fungi have symbiotic relationships with plants, benefiting both. Some native animals, such as the Southwestern Brown Bandicoot (*Isoodon fusciventer*) and the Bush Rat (*Rattus fuscipes*), depend on fungi as part of their diet. They are also important vectors for fungal spore dispersal.

Lichens can help produce soil by breaking down rocks into smaller particles. They get their nutrients from the air and serve as excellent indicators of air quality.

Slime moulds exhibit complex behaviours like problem-solving and learning, even without a brain or nervous system, and are crucial for nutrient recycling in ecosystems.

2.7.1 Other Life Forms Databases

Information provided by the DBCA (NatureMap, 2024) indicates there are 425 records of slime mould, fungi and lichen species that have been identified within 10 km of Kooryunderup / Mount Hallowell as summarised in Table 8.

TABLE 8: NUMBER OF OTHER SPECIES WITHIN 10 KM

GROUP	NUMBER OF SPECIES
Slime mould	8
Fungi	316
Lichen	101

Source: NatureMap, 2024

2.7.2 Surveys

A total of 251 macrofungi and lichen species were documented in the 2008 Management Plan.

A Guide to Macrofungi in the Shire of Denmark, Mount Hallowell and Wilson Inlet Foreshore was prepared in 2011 (Syme, 2011) and included identification of 100 named species, 115 recognisable unnamed taxa and 12 species of truffle-like fungi.

iNaturalist lists 87 fungi present at Kooryunderup / Mount Hallowell. Seventy-seven fungi and lichen species were identified as part of the citizen science Bioblitz in 2023 (Appendix 4).

2.8 DIEBACK

A dieback assessment of the Reserve was undertaken in 2014 (Great Southern Biologic, 2014). The disease distribution is shown in Appendix 5. Disease expression was confirmed in the creek line to the west of Iluka Avenue on the southern boundary, on a granite peak on the Bibbulmun Track and extending north from the infestations west of Harrington Break. As a result, the disease distribution map shows the infested area spreading from the creek to the west of Iluka Avenue, heading east and north to include the vegetation adjacent to the Heather Road development, west along the Bibbulmun Track, north to the northern management access track and then west to the western boundary.

The disease boundary has not been operationally mapped in areas excluding access points such as management access tracks and the Bibbulmun Track. It is possible that the infested area may contain some small areas of vegetation yet to show visible signs of infestation. Likewise, the full extent of the areas depicted as uninterpretable may also contain some infested soils that do not express due to the lack of susceptible species in the vegetation.

Recommendations from the 2014 dieback assessment include:

1. Town Planning Scheme Policy No. 1 for Dieback Disease Management

All works within and around Kooryunderup / Mount Hallowell, to strictly adhere to Town Planning Scheme Policy No. 1 for Dieback Disease Management (Shire of Denmark, 1997) hygiene controls.

2. Phosphite

Treatment with Phosphite is not recommended within the Reserve due to the size of the infested area and the requirement for treatment of disease boundaries, which cannot be accurately determined due to the uninterpretable nature of much of the Reserve's vegetation.

3. Operational Hygiene

All operational activities, including firebreak maintenance, are to be undertaken in dry soil conditions. Undertaking operational activities in dry soil will significantly reduce the risk of transporting infested soil from currently infested areas to uninfested areas in the Mount Hallowell Reserve and other Shire reserves.

All vehicles, machinery, equipment, and footwear must be effectively cleaned down prior to accessing protectable areas within the Reserve. Clean-down locations for people on foot and vehicles are shown in Appendix 5.

All earthworks, road verge works, and street sweeping conducted in any residential area adjoining the reserve must be undertaken in accordance with Town Planning Scheme Policy No. 1 for Dieback Disease Management (Shire of Denmark, 1997) hygiene guidelines. These areas are also considered to be infested through the mechanisms of autonomous spread.

The movement of soil and vegetable matter from these residential areas presents a potential risk of disease vectoring. Private residents and contractors undertaking private works should also be urged to comply with this standard.

If soil moving activities are proposed in areas away from existing access tracks and trails, then an operational survey must be undertaken prior to commencing the proposed works. The

information in this survey provides operational disease distribution information for existing tracks and trails.

4. Track Rationalisation

The reserve has interconnected vehicle access tracks, originating from the Heather Road and Iluka Avenue residential areas. These tracks are contained within the infested hygiene category and do not present an immediate threat to the protectable areas of the reserve. They do present a source of infested soil that can be transported to other Shire reserves following moist soil access by four-wheel drive vehicles. Closure of all non-essential tracks will reduce this risk and should be considered. Closure of tracks crossing moisture-gaining sites (e.g. creeks) and clayey soils should be the highest priority.

5. Bimbimbi Way Management Access Hygiene

The management access and fire break to the north of Bimbimbi Way is classified as uninterpretable due to insufficient indicator species to enable detection of the disease. As the eastern end of this access adjoins an infested creek line, it is likely that there is dieback along this management access track, which cannot be identified and demarcated. It is a recommendation that this section of management access be managed as a stand-alone area.

Effective clean-down should be undertaken when entering and leaving this management access track, and all operational activities in this area should be undertaken in dry soil conditions. If required, clean-down is to be performed on Shire land at the gate where the management access track enters private property, as shown in Appendix 5.

6. Project Dieback Signage

Existing Project Dieback disease category demarcation signage posts should be monitored and reviewed along walk trails and management access tracks as they mark the disease hygiene categories as shown in Appendix 5.

General disease information signage has been installed at reserve entry points in residential areas (e.g., Heather Road). The signage highlights the issues associated with dieback and the management actions required to minimise the spread. Signage assists with communicating these messages but should not be relied on as a stand-alone communication strategy.

7. Boot cleaning stations

There are three boot cleaning stations (Figure 4).

Boot cleaning stations are located on the disease boundary lines identified in Appendix 5. The locations of the stations should be reviewed when the dieback status is reviewed.

The boot cleaning station positioned at the western end of the Bibbulmun Track can be bypassed by walkers using the management access track which parallels the walk trail in this area. However, this is considered to be a low risk in terms of reducing the spread of dieback.

8. Community Awareness and Education

The 2014 mapping of dieback includes the surrounding residential developments on Harrington Break and Heather Road. Movement of infested soil from these areas poses a significant threat of

disease vectoring to other areas within the Shire of Denmark. Consistent with the solutions to address the threat identified in 'A Study into the Risk of Phytophthora Dieback in Ten Peri-Urban Reserves within the Shire of Denmark, Section 8, Limited Education and Awareness in the Community (Green Skills, 2008)', a public communication strategy is recommended for the immediate local community.

9. Re-Survey

It is recommended that the 2014 assessment be updated in 2026 and then considered for review in 2035.

2.9 WEEDS

In 2024, Green Skills Inc. and South Coast Bushcare Services prepared a Bushland Reserve Weeds Strategy 2024 – 2034 for the Shire of Denmark. The following criteria were used for determining High Conservation Value reserves such as Kooryunderup / Mount Hallowell:

- The bushland is in excellent condition;
- The use of the reserve includes public use, recreation and enjoyment. The facilities available include walk trails, views, landscape values (e.g. entrance to Denmark);
- The reserve is actively managed with a history of weed control, track maintenance and fuel management;
- Protection of waterways;
- Connectivity with other bushland areas; and
- Presence of weed/s of limited distribution that are highly invasive and have severe environmental impacts.

The weed works at Kooryunderup / Mount Hallowell were assigned a 'High' priority. It was also noted that *Dipogon lignosus* (Dolichos) and *Leptospermum laevigatum* (Victorian Tea Tree) had not been marked on the weeds map at the time of survey and that further survey work needed to be undertaken.

Kooryunderup / Mount Hallowell (Reserve 46618) priority weeds to control and monitor are listed in Table 9. A map of weed affected areas is shown in Figure D.

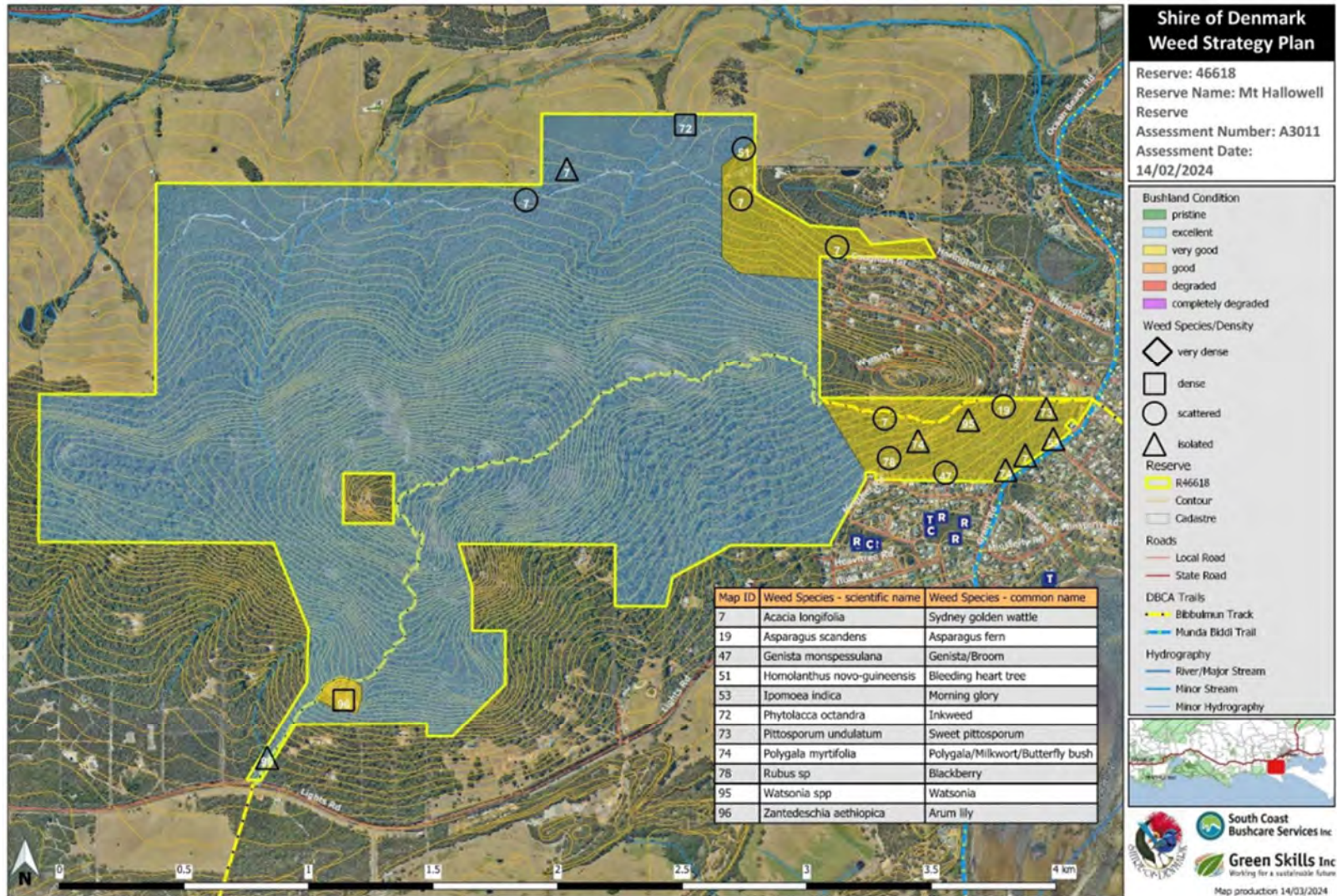
It is recommended that the Friends of Kooryunderup / Mount Hallowell and Bibbulmun Track hold regular weeding sessions in consultation with the Shire and South Coast Bushcare Services Inc.

TABLE 9: WEED SPECIES CONTROLLED AND MONITORED

SPECIES	COMMON NAME	STATUS
<i>Acacia longifolia</i>	Sydney Golden Wattle	Monitored
<i>Agapanthus praecox</i>	Agapanthus	Actively Managed
<i>Asparagus declinatus</i>	Bridal veil	Actively Managed
<i>Asparagus scandens</i>	Asparagus scandens	Actively Managed
<i>Asparagus scandens</i>	Asparagus fern	Actively Managed
<i>Chamaecytisus palmensis</i>	Tagasaste	Monitored
<i>Dipogon lignosus</i>	Dolichos pea	Actively Managed
<i>Genista monspessulana</i>	Montpellier broom	Actively Managed
<i>Gladiolus undulatum</i>	Wavy gladiolus	Actively Managed
<i>Ipomea indica</i>	Morning glory	Actively Managed
<i>Leptospermum laevegatum</i>	Victorian Tea Tree	Monitored
<i>Pandorea pandorana</i>	Wonga-wonga vine	Actively Managed
<i>Polygala myrtifolia</i>	Myrtleleaf milkwort	Actively Managed
<i>Senecio angulatus</i>	Canary creeper	Actively Managed
<i>Watsonia spp</i>	Watsonia	Actively Managed

Source: South Coast Bushcare Services Inc.

FIGURE D: WEED MAPPING FOR KOORYUNDERUP / MOUNT HALLOWELL



Source: Green Skills and South Coast Bushcare Services Inc (2024) Bushland Reserves Weeds Strategy 2024 – 2034

2.10 ACCESS

Pedestrians access the Reserve via the Bibbulmun Track and Sheila Hill Memorial Trail from Ocean Beach Road (Figures 4 and 5) and from Lights Road towards Monkey Rock (Figure 4). Various emergency access tracks and low fuel zones also provide access for pedestrians.

Parking is available at Lights Road (Trailhead for Bibbulmun Track) and Ocean Beach Road (Sheila Hill Memorial Trailhead). The gravel parking spaces are not delineated and can accommodate 7 - 10 cars each.

There is emergency vehicle access at five points (Figures 4 and 5), including:

- At the southeast corner of the Reserve (behind Heather Road) (not gated). Heather Street residents utilise this track for access to the rear of their properties.
- Emergency access track from the Lights Road car park to Monkey Rock (gated).
- Emergency access track from Mooney Valley Place to Lights Road (gated).
- Along the northern boundary of the Reserve from Goughlan Grove (gated).
- Emergency access to the north of the Reserve is by agreement with farm owners to the Denmark Heritage Rail Trail alignment (gated).

Parts of the Reserve have been slashed to provide low fuel zones of approximately 25 - 30 m width (Figures 4 and 5). The low fuel zones are assessed annually, and slashing is undertaken when fuel loads are high.

Signage indicates that the Sheila Hill Memorial Trail starts at the car park and trail head on Ocean Beach Road and then joins the Bibbulmun Track, extends to the Mount Hallowell summit and lookout before descending to Monkey Rock and terminating at the Lights Road car park. However, wayfinding signage for the trail is either missing or in poor condition.

3 STAKEHOLDER ENGAGEMENT

3.1 STAKEHOLDER ENGAGEMENT PROCESS

Due to the significant community interest in the Reserve, the Shire prepared a Community Engagement Plan in 2024, which was adopted by Council for implementation (October 2024). The framework of the engagement plan is shown in Table 10.

TABLE 10: KOORYUNDERUP / MOUNT HALLOWELL ENGAGEMENT FRAMEWORK

DELIVERABLE	TIMING	TARGET GROUP	METHOD	LEVEL	RESPONSIBILITY
Preparation Work					
Engagement plan endorsement	October 2024	Council	Present Community Engagement Plan for endorsement by Council at the October Ordinary Council meeting.	Empower	Shire of Denmark Council
Your Denmark page	October 2024	Community	Launch project webpage 'Mount Hallowell Reserve Management Plan Review' to host community consultation information.	Inform	Shire of Denmark
Engagement plan and project awareness	October 2024	Community	Share the Community Engagement Plan with the broader community to increase awareness of the review process's key objectives. <ul style="list-style-type: none"> • Advert in Bulletin • Media release • Social media post • Your Denmark page 	Inform	Shire of Denmark and Aurora Environmental
Delivery and Implementation					
One-on-one engagement	December 2024	Key Stakeholder Groups	Invitations were sent to each key stakeholder group for specific one-on-one meetings with a consultant, with an option for an on-site visit. <ul style="list-style-type: none"> • Letters • Email • Phone 	Involve	Shire of Denmark and Aurora Environmental
Community Survey	Finish 17 January 2025	Community	Gather community feedback about what is important about the Reserve and any concerns, hosted via Your Denmark page. Promote: <ul style="list-style-type: none"> • Advert in Bulletin • Media release • Social media post • Your Denmark page • Posters • E-newsletter 	Consult	Created by Shire of Denmark and Aurora Environmental

DELIVERABLE	TIMING	TARGET GROUP	METHOD	LEVEL	RESPONSIBILITY
Analysis, Writing and Completion					
Draft Plan presented to Council	April 2025	Council	Aurora Environmental briefed the council on the engagement and research process and outcomes as presented in the Draft plan.	Inform	Aurora Environmental
Draft Plan released for Public Comment	June - July 2025	Community	Incorporating community feedback from engagement and on-ground research conducted by Aurora Environmental, with a draft plan released on the 'Your Denmark' page and an online public comment portal to receive feedback in the form of a survey. Hard copies were available at the front counter (Shire Administration Building). Other feedback was also received by the Shire. Shire staff provided comments on the draft document.	Consult	Shire of Denmark
Final Plan	September/ October 2025	Council	Final plan to be presented at Ordinary Council Meeting for adoption.	Empower	Shire of Denmark
	November 2025	Minister	Seek Ministerial approval following Council adoption.	Empower	Shire of Denmark
		Community	Make final document available to community: <ul style="list-style-type: none"> • Media release • Your Denmark website • Facebook • E-news 	Inform	Shire of Denmark

3.2 IDENTIFICATION OF KEY STAKEHOLDERS

The Shire of Denmark initially identified key stakeholder groups, and the list was expanded during the engagement process (Table 11). The list comprises organisations, groups and individuals interested in the management of the Reserve, or that have a legislative interest. Other groups and individuals were included in the engagement process if they expressed an interest.

TABLE 11: STAKEHOLDERS

KEY STAKEHOLDERS
Bibbulmun Track Foundation
Bibbulmun Track Foundation Maintenance Volunteers (Mount Hallowell section)
Denmark Dog Owners Group
Denmark Bird Group
Denmark Environment Centre
Denmark Equestrian Management Group

KEY STAKEHOLDERS
Denmark Mountain Bike Club
Denmark Running Club
Department of Biodiversity Conservation and Attractions (DBCA) Warren Region (Manjimup & Frankland District Walpole Office)
DBCA Parks and Wildlife Recreation & Trails Unit
Department of Planning Lands and Heritage (DPLH) – Indigenous Heritage South Coast Region
Department of Water and Environmental Regulation (DWER)
Friends of Bibbulmun Track (Mount Hallowell sections)
Friends of Kooryunderup / Mount Hallowell Reserve
Green Skills
Kwoorabup Barefoot Walking Group
Ocean Beach Bushfire Brigade
Private Property owners with a shared boundary with the Reserve
Shire of Denmark (relevant staff)
South Coast Bushcare Services
Ocean Beach residents and ratepayers
Wagyl Kaip
Wider Shire of Denmark community
Water Corporation

3.3 SUMMARY OF STAKEHOLDER INTERVIEWS

Eight groups met with Aurora Environmental, including:

- Friends of Kooryunderup / Mount Hallowell Inc. (PowerPoint presentation provided).
- South Coast Bushcare Services Inc.
- Wagyl Kaip.
- Denmark Environment Centre.
- Bibbulmun Track Foundation.
- Denmark Bird Group.
- Denmark Mountain Bike Club Inc.
- Department of Biodiversity Conservation and Attractions (Frankland and Kensington Offices).

Eighteen individuals were interviewed, including residents.

Internal (Shire of Denmark) stakeholders included:

- Executive Officers.
- Denmark Sustainability Officer.
- Denmark Fire Control Officer.

- Manager Waste and Reserves.

Other stakeholders included:

- Nathan McQuoid, Ecologist.
- Elizabeth (Lizzie) Hill, daughter of Sheila Hill.

Submissions were also received from:

- Birdlife WA.
- Ocean Beach Bush Fire Brigade.

3.4 COMMUNITY SURVEY

The Shire of Denmark released a survey on Wednesday, 20 November 2024, which closed on Friday, 17 January 2025. The survey questions focused on feedback regarding the management of Kooryunderup / Mount Hallowell and are summarised in Appendix 6. Key themes and concerns are also summarised in Appendix 6. A report was prepared for the Shire of Denmark to summarise stakeholder input (Aurora Environmental, 2025a).

Key insights and analysis including quantifiable measures based on the survey responses include:

Demographics and Participation

- **Total Responses:** 216 responses. The survey received a significant number of responses from various participants, including residents, visitors, and stakeholders.
- **Age Groups:** Respondents were from diverse age groups, with a notable representation from the 50-64 and 65+ age brackets.
 - 17 years or younger: 2 (0.9%)
 - 18-29 years: 3 (1.4%)
 - 30-49 years: 52 (24.2%)
 - 50-64 years: 93 (43.3%)
 - 65+ years: 65 (30.2%)
- **Gender:**
 - Female: 137 (63.7%)
 - Male: 73 (34.0%)
 - Prefer Not to Say: 4 (1.9%)
 - Other: 1 (0.5%)

The survey responses reflected a community deeply connected to Mount Hallowell, valuing its natural beauty, biodiversity, and the peace it offers. There was support for existing passive uses such as walking and hiking. However, there was little support for activities such as mountain biking.

The community's concerns about fire risk, illegal activities, and the need for better infrastructure and education also highlight areas that need attention in this Management Plan.

3.5 COMMUNITY FEEDBACK – DRAFT MANAGEMENT PLAN

The draft Kooryunderup / Mount Hallowell Management Plan was released for stakeholder input on 18 June to 18 July 2025 (Aurora Environmental, 2025c). A survey was made available via the 'Your Denmark' webpage to seek feedback. Other forms of submissions were also received. A report was prepared for the Shire to summarise the submissions (Aurora Environmental, 2025d).

Two hundred and twenty six surveys were received by Aurora Environmental with 15 written submissions.

Key insights are included in Appendix 6.

3.6 COMMUNITY EXPECTATIONS

The stakeholder engagement process indicated that the community is very invested in the long-term health and management of Kooryunderup / Mount Hallowell. Summarising stakeholder input by management issues, indicates the following:

Conservation

Conservation of biodiversity, including threatened species, is seen as the most important management focus for the Reserve. All other uses were seen as ancillary and only acceptable if they were compatible with preservation of natural values.

Pest, Weed and Disease Management

Consistent pest, weed, and disease management was identified as the key to preserving biodiversity within the Reserve, either through active management (e.g., activities by South Coast Bushcare Services Inc. and Friends of Kooryunderup / Mount Hallowell).

Recreation

Recreation is generally viewed as a way to interact with nature without disturbing the area's conservation values. Passive recreation activities such as hiking, bird watching, running and dog walking were broadly supported. There was a very marked split in community sentiment regarding activities such as mountain bike riding.

Infrastructure

Upgrading of the car parks, including interpretive signage at the Sheila Hill and Bibbulmun track trail heads, was supported.

Resurfacing and drainage works associated with emergency access ways (Heather Road and Monkey Rock) were supported.

Monitoring and upgrades of infrastructure such as Sheila Hill Trail signage, dieback boot cleaning stations, bollards and gates were requested.

Installation of drainage and re-sheeting with gravel of eroded emergency access ways behind Heather Road and track up to Monkey Rock was identified as a high priority.

Fire Management

Stakeholders recognised that fire was an imminent risk in the area. However, the vast majority respondents valued the Reserve's conservation values more than the fire risk. People also recognised the significance of long unburnt areas, including old trees containing nesting hollows that could be lost in fuel reduction burns. Many nearby residents

have evacuation plans and do not want to see the Reserve's conservation values diminished by widespread fuel reduction burns.

The presence of low fuel zones adjacent to Heather Road was supported.

Notably, the Ocean Beach Bushfire Brigade submission states that the volunteers are well placed to rapidly respond to fires on the lower slopes of the Reserve, if access is maintained at current levels.

Culture And Heritage

Stakeholder input strongly supported the recognition of cultural heritage in the area, including carrying out a Cultural Heritage Survey (i.e. partnership with Wagyl Kaip).

Some activities such as abseiling on Monkey Rock was questioned by some as possibly inappropriate.

Community Engagement

Groups such as the Friends of Kooryunderup / Mount Hallowell, South Coast Bushcare Services, Denmark Bird Group and Denmark Environment Centre are already actively involved in the care and management of the Reserve. These groups will benefit from more formal interaction with the Shire of Denmark regarding management of the area.

Respondents were supportive of educational activities and programs to increase awareness of the value of Kooryunderup / Mount Hallowell (and other natural areas).

Land Use Planning

Stakeholders supported the management of Reserves 14239, 48429, 32861 and 35464 consistent with values of Kooryunderup / Mount Hallowell.

Residents recognised the importance of fire planning and conditions placed on development with respect to access and fire management.

Compliance

Respondents were generally supportive of compliance efforts to prevent unlawful or unauthorised activities (e.g. construction of mountain bike trails, rubbish dumping, low fuel areas and emergency access).

Access and use of the Reserve by landowners that back onto the Reserve from Heather Road was questioned as it comprises private use of public land. This requires further discussion with landowners.

4 VALUES

4.1 BIODIVERSITY VALUES

Biodiversity underpins all life on Earth. Without the complex interactions between plants, animals, and their environment, there would be no air to breathe, no food to eat, and no water to drink. Many discoveries are yet to be made about the web that makes up our lives, livelihoods, medicine, culture, and natural beauty.

Humans depend on nature for various ecosystem services (clean air and water, pollination and food). Generally, the more biodiverse an ecosystem is, the greater its stability, productivity, and resilience, including in the face of threats such as climate change, pests and diseases (Barraclough *et al.*, 2023). In addition, animal, plant and microbial diversity are essential sources of medicinal compounds and nutritious food.

Scientific research supports the benefits of investing in environmental protection, including improved community health and wellbeing, protection of cultural identity, economic benefits, moderating climate impacts, reducing diseases and enhanced resilience. It will also allow for future research opportunities.

Growing evidence shows that accessible and diverse green spaces offer higher restorative benefits to human health and wellbeing than those that can be realised in simplified natural environments, such as landscaped parks with limited numbers of plant species.

Kooryunderup / Mount Hallowell, with its varied geology and vegetation assemblages, provide a refuge for a diverse range of species, including Threatened species. The Reserve is an important biodiversity resource for Denmark and the southwest of Western Australia.

The Reserve is part of the Macro Corridor along the South Coast (Wilkins *et al.*, 2006). It is also part of 'Gondwana Link', an area which is the subject of reconnection between the forest areas of the southwest of Western Australia and the Western Woodlands of the Goldfields (Gondwana Link, 2025).

4.2 CULTURAL AND HERITAGE VALUES

The Kooryunderup / Mount Hallowell reserve is not currently listed as a site under the *Aboriginal Heritage Act 1972*. However, this is most likely because the area has not been adequately surveyed. Important cultural sites exist in the area, and their significance is only starting to be realised and rediscovered. Lizard traps '*karda mia*', water trees '*boorna gnamma*', hollowbutt trees and red ochre '*wilgi*' or '*mirda*' have been found on Kooryunderup / Mount Hallowell indicating a rich Aboriginal cultural history within the area.

The WA Heritage Council has listed Mount Hallowell (Reserves 46618 and 14239) as a 'Registered Heritage Place that does not warrant assessment' (26 July 2020, INHERIT, 2025).

Mount Hallowell is listed in the Shire of Denmark Municipal Heritage Inventory (Municipal Heritage Inventory Review Working Group (2011 as amended 2014) due to its considerable significance as outlined below. Shire of Denmark Municipal Heritage Inventory. Council Resolution 120814.

- **Description:** Very important to the heritage of the locality. High degree of integrity/ authenticity.
- **Desired Outcome:** Conservation of the place is highly desirable. Any alterations or extensions should reinforce the significance of the place.
- The area is significant for the maintenance of faunal processes as it contains undisturbed remnant forest communities of karri (*Eucalyptus diversicolor*); karri/marri (*Eucalyptus diversicolor/Eucalyptus calophylla*); karri/yate (*Eucalyptus diversicolor/Eucalyptus cornuta*); jarrah (*Eucalyptus marginata*); jarrah/blackbutt/bullich (*Eucalyptus marginata/ Eucalyptus patens/Eucalyptus megacarpa*); jarrah/marri (*Eucalyptus marginata/Corymbia calophylla*); marri (*Corymbia calophylla*); and woodlands of mixed jarrah (*Eucalyptus marginata*), blackbutt (*Eucalyptus patens*) and paperbark (*Melaleuca* sp.); shrublands and heathlands with vegetation associated with granite outcrops also being prominent. The Reserve provides habitats for >70 documented species of birds (see Mount Hallowell Reserve Management Plan, Shire of Denmark, November 1995) including the red capped parrot, (*Purpureicephalus spurius*) and the red-eared firetail finch (*Emblema oculatum*). It contains a range of landforms, soils and vegetation communities characteristic of the eastern extremity of karri forest occurrence. It consists mainly of virgin (unlogged) forest with little disturbance and all the Reserve is old growth vegetation. It has extremely high landscape values and visual amenity and has important values for tourism.
- The Mount Hallowell Reserve includes habitat for a number of endemic fauna species, including: Red Capped Parrot (*Purpureicephalus spurius*); Red Winged Fairy Wren (*Malurus elegans*); Peregrine Falcon (*Falco peregrinus*); Quokka (*Setonix brachyurus*); Honey Possum (*Tarsipes rostratus*); Western Brush Wallaby (*Macropus irma*); Woylie (*Bettongia penicillata*); Common Brushtail Possum (*Trichosurus vulpecula*); Common Ringtail Possum (*Pseudocheirus peregrinus*); Western Pygmy Possum (*Cercartetus concinnus*); Southern Brown Bandicoot (*Isodon obesulus*); Western Quoll or Chuditch (*Dasyurus geoffroii*); Brush-tailed Phascogale (*Phascogale tapoatafa*); Yellow-footed Antechinus (*Antechinus flavipes*); Bush Rat (*Rattus fuscipes*); Water Rat (*Hydromys chrysogaster*); Echidna (*Tachyglossus aculeatus*); Square Nosed Snake (*Rhinoplocephalus bicolor*); Dugite (*Pseudonaja affinis affinis*); Black Tiger Snake (*Notechis ater occidentalis*); Marbled Gecko (*Phyllodactylus marmoratus*); Smith's Skink (*Egernia napoleonis*); Burrowing Skink (*Hemiegis peronii peronii*) and New Holland Skink (*Leiopisma trilineatum*).
- The Reserve contains known populations of endemic flora species, including: *Eucalyptus cornuta* and *Banksia serra*. The area is also important for maintaining forest and woodland processes.
- The topographic diversity of this area contributes to high aesthetic values and scenic grandeur. The area contains uncommon geomorphic features of rock outcrops and monadnocks which are significant reasons for abundance and diversity of flora and fauna taxa and habitats. Despite its small size, the Reserve provides wilderness values for many visitors.
- Mount Hallowell was named by Dr TB Wilson after Admiral (Sir) Benjamin Hallowell of The Royal Navy. The Mount Hallowell Reserve is located 3.5 km NNW of the mouth of Wilson Inlet on the south coast of Western Australia. It consists of an extremely diverse landscape with hills and ridges generally with a 50 m to 100 m of local relief but rising to >300 m at the summit of Mount Hallowell. Granite outcrops on the upper and mid slopes occur as prominent domes and pinnacles. Soils are dominated by Keystone (K) units (Churchward *et. al.*). The area contains a significant diversity of vegetation comprising forests of karri; karri/marri; karri/yate; jarrah; jarrah/blackbutt/ bullich; jarrah/marri; marri; and woodlands of mixed jarrah, blackbutt and paperbark; shrublands and heathlands. Vegetation associated with granite outcrops is also prominent.
- Most of the area is undisturbed (>96%). A small part on the northern boundary was used for sand extraction in the 1980s. Some timber was selectively extracted from a discrete area on the northern slopes during the 1950s. The Sheila Hill Memorial Walk Trail (which doubles as part of the Perth to Albany Bibbulmun Walk Track) passes through the Reserve. It is bordered to the west and north by grazing farmland, to the south by rural subdivisions and by urban residential to the east. The Reserve has good condition and integrity with the majority carrying very old fire age (>70 years) vegetation.
- There is oral history to indicate that a WW2 Voluntary Defence Corps lookout post was situated on the top of Mount Hallowell.

4.3 RECREATIONAL VALUES

The Kooryunderup - Mount Hallowell Reserve affords spectacular views of the Southern Ocean, coastal areas and Wilson Inlet from the Bibbulmun Track / Sheila Hill Memorial Trail. Visitors enjoy the magnificent towering stands of old karri, jarrah and marri and unparalleled vistas from the granite-strewn ridgeline towards the summit. Views to the north encompass Mount Shadforth, Mount Lindsay, and the Denmark hinterland. South Coast Bushcare Services Inc. have developed a brochure to inform trail users about the values of Kooryunderup – Mount Hallowell (Appendix 7).

The Bibbulmun Track / Sheila Hill Memorial Trail and other trails (and emergency access tracks) allow Denmark residents and visitors to enjoy passive recreational pursuits without contributing to the decline of the conservation values of the Reserve.

The Reserve has attributes that make it attractive for a suite of recreational activities, including walking, dog walking, hiking, running, bird watching, nature appreciation, cycling, mountain biking, and rock climbing / abseiling. While there is general support for more passive uses, community views have been polarised about the extent of certain recreational activities that should be permitted in the Reserve, such as cycling, dog walking and rock climbing / abseiling, because of the potential for these to have negative environmental impacts (as well as cultural sensitivities in the case of rock climbing / abseiling).

Mountain biking in particular has been a highly contentious issue within the community, largely because of the considerable level of past debate around proposals to develop mountain bike facilities in the southeastern portion of the Reserve. These earlier proposals are no longer being pursued. Instead, mountain bike facilities are currently being progressed and will be provided at Turner Road and McLean Park.

More detail on the arrangements that apply for specific recreational activities (namely cycling, dog walking and rock climbing / abseiling) are outlined below. These arrangements must be adhered to for the future management of the Reserve, and are based on:

- the requirement to balance the Conservation and Recreation purpose of the Reserve;
- the feedback received during the extensive community engagement and consultation that's been undertaken in developing this Management Plan; and
- the Shire's responsibility to meet the valid expectations of different recreational user groups, without comprising the overarching management goals for the Reserve.

It should be noted that any expansion of existing cycling / walking trails or construction of any new trails in the Reserve is prohibited.

4.3.1 Cycling

Figures 10 and 11 show where cycling is allowed or prohibited in the Reserve.

Low-key recreational cycling is permitted on designated existing emergency access tracks. Riding on these tracks must be limited to an appropriate speed that ensures the safety and is respectful of other users. While the designated emergency access tracks where cycling is allowed have sufficient width and lines of sight to accommodate non-technical riding at limited speed with other activities such as walking or trail running, signage will be installed to communicate shared use and reinforce the need for safe and respectful behaviour between different user groups.

Recreational cycling is also allowed on one existing cleared trail alignment connecting the upper and lower emergency access tracks in the southeastern portion of the Reserve. This will be a one-way cycling only trail (north to south one-way direction and exclusively for cycling – i.e. no walking / dog walking / running allowed).

Utilising an existing trail alignment designated exclusively for cycling and separate to any walking trails will ensure a clear separation of user groups, which is expected to enhance safety for all Reserve visitors, reducing the potential for collisions and conflicts between cyclists and walkers.

Formalising the existing trail alignment also provides an opportunity to partner with all users on rehabilitation efforts and provide education on conservation of the Reserve. The Shire will combine targeted rehabilitation of unused or duplicate tracks with improvements to the designated cycling-only trail, leveraging local knowledge and enthusiasm to achieve better ecological outcomes alongside managed recreation.

Cycling is prohibited on the Sheila Hill Memorial Trail and the Bibbulmun Track, other than a small section at the eastern end which doubles as an emergency access track.

Competitive high-risk technical cycling is prohibited anywhere in the Reserve.

'Share the Trail' signage will be installed at relevant entry points, along with the location and other information about alternative mountain bike facilities (Turner Road, McLean Park, etc). This will assist towards highlighting the low-key nature of cycling in the Reserve, reinforce the need for safe and respectful behaviour between different user groups, and promote greater awareness about the availability of other (technical) mountain bike facilities nearby.

4.3.2 Dog Walking

Figures 8 and 9 show where dog walking is allowed off-lead or on-lead in the Reserve.

Irrespective of the requirement for leads or otherwise, dogs must be under control at all times within the Reserve.

Dog walking is allowed off-lead along designated tracks / trails and low fuel zone areas in the southeastern portion of the Reserve.

Dogs are allowed but must be on-lead along the section of the Bibbulmun Track from Lights Road carpark to near the start of the residential area to the west of Ocean Beach Road. Dog walking must also be on-lead along the emergency access track from Lights Road to Monkey Rock (which runs parallel to the Bibbulmun Track).

The requirement for dogs to be on-lead in certain parts of the Reserve will require an update to the relevant Local Law.

4.3.3 Rock Climbing / Abseiling

In the past, rock climbing and abseiling have generally been unrestricted throughout the Reserve. These activities have historically been undertaken by school groups and outdoor education tour operators utilising an area near Monkey Rock.

As part of implementing this Management Plan, in the future each event or group will be required to obtain permission from the Shire CEO before proceeding.

This requirement aims to balance adventure recreation with the protection of sensitive habitats and cultural values. By requiring prior approval, the Shire can assess potential environmental and cultural impacts and ensure that activities are conducted safely and respectfully, minimising risks to both the natural landscape and cultural heritage.

5 ASSESSMENT AND AUDIT

5.1 STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS

The development of this management plan has considered management strengths, weaknesses, opportunities and threats (SWOT analysis). Input from key stakeholders has also informed this analysis. Strengths, weaknesses, opportunities and threats are shown in Table 12.

TABLE 12: STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS

STRENGTHS	WEAKNESSES
Iconic Reserve is valued by the community for its environmental values and recreational opportunities. High Biodiversity. Presence of Threatened species such as Black Cockatoos.	Resource availability from Shire (e.g. funding for infrastructure such as car park upgrades, signage, emergency access track rehabilitation, ranger services and educational investment).
OPPORTUNITIES	THREATS
To increase engagement with the community for active management in the Reserve. Cultural Heritage Survey proposed by Wagyl Kaip. Research long-unburnt vegetation (fuel and community assemblages). Further citizen science initiatives, such as Bioblitz events.	Loss of biodiversity and ecological values from dieback, weeds, climate change and inadequate management practices. Fire risk is high. Safety of all users. Balancing the needs of different competing user groups (walkers, cyclists, birdwatchers, dogs, etc).

5.2 AUDIT OF CAR PARKS, TRACKS, TRAILS AND DIEBACK INFRASTRUCTURE

An audit of existing infrastructure has been undertaken as part of this management plan review (Aurora Environmental, 2025b). Figures 4 and 5 show the locations of existing car parks, trailheads, tracks, trails, gates, and dieback infrastructure. Photographs are shown in Appendix 8.

In summary, the audit indicates the following:

1. Sheila Hill Memorial Trail car park: The gravel parking area is in fair condition. Delineating the space with bollards between the edge of the parking area and bushland would improve it. Drainage improvements are recommended.
2. Lights Road car park: Gravel parking area in fair condition. Delineation with bollards between the edge of the parking area and the bushland would improve the space. Drainage improvements using the Shire of Denmark depot resources are recommended.
3. Increasing the number of car parking bays at both car parks would require clearing of existing native bushland and is not recommended at this stage.
4. Emergency access tracks to Monkey Rock from Lights Road and behind Heather Road are in poor condition and seriously eroded in places. Drainage needs to be installed to capture and divert water (pipes and/or rollover drains) and re-sheet gravel to fill eroded areas.
5. The northern track meets emergency access requirements—no action is required other than annual or seasonal maintenance.
6. The Bibbulmun Track is in good condition and well supported by the Bibbulmun Track Foundation, DBCA, and local volunteers. However, some signage needs renewal.

7. The Sheila Hill Memorial Trail is poorly delineated and requires formalisation (wayfinding signage and information at the trail head).
8. The low fuel zones adjacent to Heather Road and Forest Road function well.
9. A low fuel zone needs to be installed behind residences on Pember Way and Ravenhill Heights in Harrington Break.
10. The Shire can provide permission for landowners to take a strategic approach to emergency access where topography and obstacles make boundary access impractical. For lots adjacent to the southwest portion of the Reserve where topography and obstacles make boundary access impractical, the Shire currently grants periodic exemptions to landowners for strategic emergency access in lieu of boundary fire breaks. The Shire and these effected landowners can investigate amending individual property titles to formalise and make such exemptions permanent, noting this only applies to specific lots and would be achieved through liaison with the Shire to approve alternatives to the existing defined Strategic Access and Subdivision Access plans (Figure 6). This will give more certainty to landowners in the area.
11. Three dieback boot cleaning stations are located as shown in Figure 4. The stations are located according to the status of dieback in the Reserve, mapped by Great Southern Bio Logic in 2014 (Appendix 5). Until the dieback status is reviewed, the boot cleaning stations are in the most appropriate locations. However, the stations must be maintained (brushes and cleaning out of sand from trays). It is suggested that the Shire work with Friends of Kooryunderup / Mount Hallowell to service the boot cleaning stations.

5.3 AUDIT OF TRAIL HEADS, SIGNS AND WAYFINDING MARKERS

The goal of signage is to provide direction, identification, succinct information, and/or interpretation to inform visitors about the use of the area. Signs should be integrated so that there are no more signs than needed. All signs should match the style the Shire has across the municipality.

Signs should comprise positive messages, noting that regulatory information can be presented positively. When reminding visitors of their obligations, the signs can inform them of positive aspects of their environment, such as recreational or nature appreciation opportunities.

The status of signs in the Reserve is as follows:

- The trailhead signage at Lights Road and Sheila Hill Memorial Trail car parks is in poor condition (Figures F and H) and needs to be upgraded.
- Signage directing walkers from the Lights Road car park to the Sheila Hill Memorial Trail car park is needed.
- Sheila Hill Memorial Trail signage is missing or in poor condition.
- Dieback signage is appropriately located and in line with the dieback assessment carried out by Great Southern Biologic in 2014. However, some signs need to be replaced as they are in poor condition.

New trailhead signage should be developed and erected at locations shown in Figures 6 and 7. Figure I illustrates the proposed signage style and includes the Shire's logo and relevant symbols for recreational uses and safety warnings. Trailhead signage should include a map of the Reserve, including the possibility of people walking from the Lights Road carpark to the Sheila Hill Memorial Trail carpark. Interpretive signage can be mounted on a separate structure.

Symbols for 'permissible', regulatory or information should follow the National Aquatic and Recreational Signage Style Manual format (Aquatic Signage Steering Committee, 2006). Symbols which should be included:

Regulatory:

- No cycling except in designated areas (no cycling on the Bibbulmun Track).

- Dog use (RS,41).
- No open fires.

Permissible:

- Cycling on designated tracks only.
- Walking/ hiking (Use DBCA symbol).
- Observe/ Conserve (Use DBCA symbol).
- Lookout (Use DBCA symbol).

FIGURE E: EXISTING LIGHTS ROAD CAR PARK SIGNAGE



FIGURE F: EXISTING TRAILHEAD SIGNAGE SHEILA HILL MEMORIAL TRAIL



FIGURE G: TRAILHEAD SIGNAGE - PROPOSED SIGN STYLE



6 MANAGEMENT

6.1 MANAGEMENT GOALS

Consultation with stakeholders indicated that the management goals for the Reserve should include:

1. **Conservation Goal:** The primary goal of managing the Reserve is to protect natural biodiversity including vegetation communities, flora, fungi, fauna, and ecological processes that contribute to the Reserve's well-being through sound management of threatening processes.
2. **Recreation and Infrastructure Goals:** Support low-key passive recreation activities such as walking, hiking, running, and low-key cycling with appropriate infrastructure installed and maintained to ensure a safe and enjoyable experience for visitors.
3. **Fire Management Goal:** The goal is to protect the Reserve's biodiversity values and also life and property adjacent, through best-practice fire management and active suppression of wildfires.
4. **Culture and Heritage Goal:** Kooryunderup / Mount Hallowell is a significant cultural and heritage site for Traditional Custodians, and it will be managed to protect these values.
5. **Community Engagement, Research and Education Goal:** As an area rich in biodiversity, the goal is to raise awareness of the Reserve's intrinsic and educational value while promoting ongoing citizen science and other research initiatives.
6. **Land Use Planning and Compliance Goals:** Protect the values of Kooryunderup / Mount Hallowell from threats such as fire, introduction and spread of dieback through consistent application of land use planning and compliance.

6.2 MANAGEMENT ACTIONS

Actions are listed against each identified goal/value category, site, responsibility, priority, and resourcing requirements.

The actions outlined in the 2008 management plan have been reviewed. Stakeholders, including Shire staff, provided information about whether the 2008 actions had been completed, were ongoing, not commenced, or were redundant.

Categories for action priorities, status, resourcing, responsibility and management are included in Table 13.

Some actions are still current and were updated for inclusion in this Management Plan. Other actions have been developed based on stakeholder engagement and visits to the Reserve. All proposed actions are included in Table 14. Site specific actions are shown in Figures 6 and 7, dependent on community feedback and Council resources.

TABLE 13: CATEGORIES FOR ACTION PRIORITY, TIMING, STATUS, RESOURCING, RESPONSIBILITY AND MANAGEMENT

PRIORITY AND TIMING	RESOURCING	RESPONSIBILITY (SHIRE OF DENMARK)	MANAGEMENT CATEGORY
<ul style="list-style-type: none"> • High • Medium • Low 	<ul style="list-style-type: none"> • Existing • Planned • New 	<ul style="list-style-type: none"> • Rangers • Emergency Services / Bushfire Mitigation • Parks and Reserves • Sustainability • Planning • Infrastructure • Technical Services 	<ul style="list-style-type: none"> • Conservation • Recreation and Infrastructure • Fire Management • Culture and Heritage • Community Engagement, Research and Education • Land Use Planning and Compliance

The Shire of Denmark delivers its programs and services across the region through a structured and strategic approach, ensuring that initiatives align with community needs and priorities. The Shire’s Council Plan outlines a five-year forward works program, which details the planned projects and activities to be undertaken over this period. This program encompasses a diverse range of management categories—including conservation, recreation and infrastructure, fire management, culture and heritage, and community engagement—ensuring that all key operational areas are addressed.

The works identified in the Management Actions Table are supported by the Council Plan.

TABLE 14: RECOMMENDED ACTIONS BY MANAGEMENT CATEGORY

MANAGEMENT CATEGORY	ACTION ID	2025 ACTIONS (SPECIFIC AND MEASURABLE)	RESPONSIBILITY (SHIRE OF DENMARK)	PRIORITY	RESOURCING REQUIRED	COMMENT EXTERNAL PARTNERS
CONSERVATION	C1	Refer to Shire of Denmark Code of Practice for Works and Reserve management.	Infrastructure / Parks and Reserves	Medium	Planned	Review Shire of Denmark Code of Practice and include information on standards for walk trail widths and surface materials. Use DBCA guidelines as a guide: https://www.dbca.wa.gov.au/parks-and-wildlife-service/trails
	C2	Ensure Code of Practice is implemented for any operational disturbance/ works undertaken by Shire staff and contractors.	Infrastructure	High	Existing	Inform/train Shire staff and contractors as part of Code of Practice.
	C3	Follow the requirements of the 'Shire of Denmark Policy No. 1 Dieback Management' for dieback management within the Reserve.	Infrastructure	High	Existing	Ensure staff and contractors implement the requirements of the dieback management policy. Policy at: https://www.denmark.wa.gov.au/documents/198/policy-no-1-dieback-disease-management
	C4	Undertake Environmental Impact Assessments (EIA) for any new operational disturbance activity proposed.	Infrastructure / Parks and Reserves	High	New	Shire undertakes EIA for any new operational disturbance activity proposed (e.g. new infrastructure, trails, etc).Note - clearing can only occur under a valid permit or applicable exemption.
	C5	Consider environmental sensitivities such as granite outcrops, black cockatoo nesting, etc., when reviewing and approving events (e.g. abseiling and adventure races on Mount Hallowell / Monkey Rock).	Parks and Reserves	High	Existing	
	C6	Implement weed control activities according to Bushland Reserves Weeds Strategy 2024 – 2034.	Infrastructure / Parks and Reserves	High	Planned	Bushland Reserves Weeds Strategy 2024 - 2034
	C7	Implement track rehabilitation and maintenance program as identified in this plan.	Parks and Reserves	High	New	Modify trail in south east portion of Reserve (Figure 7) to create a one way bike only trail (north to south) and retain other portion as walk trail, with both trails on existing cleared alignment and connecting to upper and lower firebreaks.
	C8	Continue to monitor areas that have been upgraded, rehabilitated and/or revegetated (quarterly for three years and then annually).	Parks and Reserves	Medium	New	Involve volunteers for these activities.
	C9	Implement recommendations from Dieback Study and Great Southern Bio Logic (2014) as described in Section 2.8: <ul style="list-style-type: none"> Operate in compliance with Town Planning Scheme Policy No.1 Dieback. Practice operational hygiene (clean down vehicles). Rationalise tracks. Bimbimbi Way management access hygiene. Project dieback signage installation to be monitored. Maintain boot cleaning stations. Continue community awareness and education. 	Infrastructure / Parks and Reserves / Sustainability	Medium	New	Details are in Kooryunderup / Mount Hallowell Management Plan
	C10	Update dieback distribution mapping in 2026 and re-evaluate in 2035.	Sustainability	Medium	New	
	C11	Implement a regular program to control feral animals across the Reserve.	Parks and Reserves	Medium	New	Control domestic and feral cats through a program of trapping and education in collaboration with relevant community organisations which targets residents within cat roaming distance of the Reserve and encourages actions such as (but not limited to) the construction of cat runs, trapping of cats within and adjoining the reserve and the distribution of information about responsible cat ownership and the damage roaming cats can do to native fauna.
	C12	The Shire of Denmark will consider Climate Change advice and initiate actions to increase the resilience of the Reserve.	Sustainability	High	Planned	Refer to Sustainability Strategy - Land & Nature pillar.

MANAGEMENT CATEGORY	ACTION ID	2025 ACTIONS (SPECIFIC AND MEASURABLE)	RESPONSIBILITY (SHIRE OF DENMARK)	PRIORITY	RESOURCING REQUIRED	COMMENT EXTERNAL PARTNERS
	C13	Train Shire of Denmark Reserves and Sustainability staff in environmental practices and weed management.	Parks and Reserves	High	Planned	Protection of environmental values workshop planned for Shire staff and contractors.
INFRASTRUCTURE AND RECREATION	IR1	Signage to reflect use / sharing of trails.	Parks and Reserves	High	New	Retain a one-way mountain bike trail and separate walk trail in the south east portion of the Reserve (Figures 9 and 11). Emergency access tracks will be multiple use for walkers, dog walking and cycling.
	IR2	Trailhead signage will be developed and installed at Lights Beach car park, Sheila Hill Memorial Track car park, and the Bibbulmun Track entry point on Ocean Beach Road.	Parks and Reserves	High	New	Shire to consult with and seek input from Denmark Environment Centre and Friends of Kooryunderup / Mount Hallowell for trailhead and interpretative signage.
	IR3	Replace wayfinding signage for Sheila Hill Memorial Trail.	Parks and Reserves	High	New	
	IR4	Keep paths and trails well-defined, marked and maintained.	Parks and Reserves	High	New	
	IR5	Install a map of the Reserve at carparks with safety instructions (including how to walk from Lights Road car park to Sheila Hill Memorial Trail car park).	Parks and Reserves	High	New	Place a map of the reserve at each of the carparks (including Monkey Rock, Sheila Hill carpark and Ocean Beach/ Bibbulmun Track junction).
	IR6	Interpretive information to be developed for the Reserve (subjects could include Aboriginal heritage, fire regimes, Sheila Hill and biodiversity).	Parks and Reserves	Low	New	Interpretive information to be developed for key locations in Reserve e.g. car parks, trail heads and Mount Hallowell summit. Subjects include biodiversity, long unburnt vegetation, Sheila Hill, Traditional Custodian heritage and culture, fauna, flora, fungi.
	IR7	Maintain Boot Cleaning Stations and review locations when dieback status is updated.	Parks and Reserves	High	Planned	Work with partners such as Friends of Kooryunderup / Mount Hallowell to regularly maintain the Boot Cleaning Stations.
	IR8	Upgrade Sheila Hill Memorial Trail and Lights Road carparks - formalise drainage, delineate parking areas and boundaries	Technical Services	Medium	New	Will require engineering design and significant capital outlay. Deep roadside drain at Sheila Hill Memorial Trail carpark needs barrier fencing. Note - clearing can only occur under a valid permit or applicable exemption.
	IR9	Record numbers of cars parking in peak periods (school holidays).	Technical Services	Medium	Planned	Formalise car park layout and drainage to maximise use of existing space. Consider expansion of car park only if there is a safety risk associated with existing parking. Note - clearing can only occur under a valid permit or applicable exemption.
	IR10	Installation of dog waste bags and bins at Shelia Hill and Lights Rd car parks, as well as other entry points in southeast portion of Reserve.	Parks and Reserves	High	New	To be placed at appropriate entry points where dog access is allowed.
	IR11	Complete trail condition assessments biennially.	Technical Services	Low	New	To assist with impact assessment of visitation.
CULTURE AND HERITAGE	H1	Support Wagyl Kaip in undertaking a Cultural Heritage Survey and respectful consideration of culturally significant places.	Sustainability	Medium	New	A Heritage Survey was undertaken for south east portion of the Reserve by Deep Woods and Menang Peoples Working Group in 2021. A more complete heritage survey will require forming a partnership with Wagyl Kaip and other stakeholders.
	H2	Consider cultural and heritage sensitivities such as granite outcrops when reviewing and approving events (E.g. abseiling and adventure races on Mount Hallowell / Monkey Rock.)	Parks and Reserves	High	Existing	Depends on outcome of Cultural Heritage Survey.
FIRE MANAGEMENT	F1	Ensure the Fire Management Plan incorporates: <ul style="list-style-type: none"> Assessment of fire hazard levels and biomass in both the Reserve and adjoining properties. Fire Prevention Plan with medium to long term mitigation strategies. Fire Response Plan outlining predetermined fire suppression responses. 	Emergency Services / Bushfire Mitigation / Integrated Approach by Shire	High	Planned	Liaise with Mitigation Activities Fund (MAF) personnel. Fire management plan to allow for dynamic changes outside of plan with MAF program and fire management for the reserve considered as broader Shire fire priorities

MANAGEMENT CATEGORY	ACTION ID	2025 ACTIONS (SPECIFIC AND MEASURABLE)	RESPONSIBILITY (SHIRE OF DENMARK)	PRIORITY	RESOURCING REQUIRED	COMMENT EXTERNAL PARTNERS
		<ul style="list-style-type: none"> Revised Strategic Fire Access Route System. New or proposed developments to consider: <ul style="list-style-type: none"> Building Protection Zones. Hazard Reduction Zones. Current Water Supplies. Current maps. Ensure implementation of the Fire Management Plan, particularly for adjoining developments.				
	F2	Rehabilitate emergency access tracks - Lights Road carpark to Monkey Rock to formalise drainage (rollover drains) and resheet with limestone to ensure safe access.	Infrastructure / Parks and Reserves	High	Planned	Monkey Rock and Heather Road emergency access requires drainage works and resheeting with gravel to ensure safe access. Consideration to sourcing dieback free material. Will require engineering design and capital outlay.
	F3	Erect and maintain appropriate barriers to fire access ways.	Infrastructure / Parks and Reserves	High	New	Select standardised gates that serve entry requirements.
	F4	Review Heather Road southern boundary access track - consider installation of gates (in consultation with neighbouring landowners). Prevent erosion by addressing drainage issue in southern portion of emergency access track.	Infrastructure / Parks and Reserves	High	New	Review Heather Road southern boundary access track - consider installation of gates (in consultation with neighbouring landowners). Erosion has made the area unsuitable for emergency access and resurfacing/ drainage works are needed. Will require engineering design and capital outlay.
	F5	Ensure maps are current and readily accessible to fire fighters and show contours, the location of all dwellings, access, strategic emergency access tracks and water supply, as well as buffer areas. A grid and a legend should be included for easy reference.	Emergency Services / Bushfire Mitigation / Integrated	High	Existing	Seek advice from MAF personnel and Community Emergency Services Manager (CESM).

MANAGEMENT CATEGORY	ACTION ID	2025 ACTIONS (SPECIFIC AND MEASURABLE)	RESPONSIBILITY (SHIRE OF DENMARK)	PRIORITY	RESOURCING REQUIRED	COMMENT EXTERNAL PARTNERS
	F6	<p>Continue implementation of a Fire Management public education program aimed at residents, visitors and tourists, incorporating the following:</p> <ul style="list-style-type: none"> • Notification of High Fire Risk Days via EmergencyWA webpage and local radio stations. • “No open fires” incorporated into signage at entries. • Shire of Denmark to forward fire related information to new residents adjacent to Mount Hallowell Reserve to increase their fire awareness and advise them of their obligations in terms of fire protection responsibilities. • Develop and implement a process for ensuring that tenants of rental properties and holiday homes are informed of fire protection requirements. • Before and during each fire season conduct a public fire awareness campaign that particularly targets residents in the area. This may be in the form of general publicity, seminars or a door knock. Shire to seek assistance from Ocean Beach Bush Fire Brigade and William Bay Bush Fire Brigade. • Focus on quick fire suppression. 	Approach by Shire	High	Existing	Will require coordination with partners. Details of actions for tracks shown in Figures 6 and 7.
	F7	Work with adjacent landowners to the southwest of the Reserve to allow a strategic approach to emergency access where topography and obstacles make boundary access impractical.		High	Existing	Will require liaison between landowners and Shire.
	F8	Access tracks to be inspected annually.		High	Existing	Shire in cooperation with Brigade Volunteers and local Bushfire Ready Groups
COMMUNITY ENGAGEMENT, RESEARCH AND EDUCATION	CE1	Continue educating the public and community, including nearby residents and landowners, about native flora, fauna, and fungi and the identification and control of invasive species in the Reserve.	Sustainability	Medium	Existing	Consider a partnership with Birdlife Australia (Denmark Bird Group),
	CE2	Support the Friends of K-MH and other community partners in the management of Mount Hallowell Reserve.	Sustainability	High	Existing	Regular meetings, development of a partnership/ work program, administrative support, recognition, celebrations.
	CE3	Support building conservation (flora, fauna, fungi) knowledge of K-MH via opportunities such as citizen science initiatives.	Sustainability	Low	New	Obtain funding to conduct Citizen Science projects such as Bioblitz.
	CE4	Seek partnership with educational and natural resource organisations to further knowledge about K-MH, particularly long unburnt vegetation.	Sustainability	Low	New	Potential partnership with educational institutions such as Centre for Excellence - Natural Resource Management, South Coast Natural Resource Management, UWA, Birds Australia.
LAND USE PLANNING AND COMPLIANCE	CO1	Bibbulmun Track is for walking / hiking / running only. Allow low key cycling activities on emergency access tracks only (Figures 10 and 11).	Rangers	High	New	The community was divided about cycling activities in the Reserve. Due to the low risk associated with low key cycling use this activity will be supported on emergency access tracks with good lines of sight. The unsanctioned mountain bike trails will be closed and rehabilitated (Figure 7).

MANAGEMENT CATEGORY	ACTION ID	2025 ACTIONS (SPECIFIC AND MEASURABLE)	RESPONSIBILITY (SHIRE OF DENMARK)	PRIORITY	RESOURCING REQUIRED	COMMENT EXTERNAL PARTNERS
		Close unsanctioned mountain bike trails (Figure 7) and monitor. Signage at trail entrances to show permitted areas.				No cycling will be permitted on the Bibbulmun Track (other than a small section at the eastern end which doubles as an emergency access track).
	CO2	Identify and install appropriate signage to indicate where dogs must be kept on leashes (Bibbulmun Track and Monkey Rock). Dogs can be off leashes in the south east portion of the Reserve but must be under control at all times (Figure 9).	Rangers	Medium	Existing	Currently, dogs are permitted off-lead as the Reserve is outside the Denmark town gazetted area (Local Dog Law). A change to the local law is likely to be required to require dogs to be on leashes in some portions of the Reserve. Signage to be installed regarding dogs being permitted off leashes in eastern area, on leashes at Monkey Rock and the Bibbulmun Track. Refer figures 8 and 9.
	CO3	Ensure compliance with domestic animal control requirements by following up on complaints.	Rangers	Medium	Existing	
	CO4	Identify property owners who do not comply with the requirements of the Fire Break Notice and issue infringements where appropriate.	Rangers	High	Existing	Inspections are carried out throughout the Shire of Denmark for fire management compliance. The requirements for property owners are stated in the annual Firebreak and Fuel Management Notice and infringements are issued for non-compliance.
	CO5	Shire to investigate neighbouring landowners' use of the Reserve adjacent to Heather Road.	Planning	High	New	Neighbouring landowners are using the Reserve adjacent to Heather Road. Private use of the reserve is less than ideal, with potential weed introduction and other risks associated with the personal use of a public space. However, the use has been long-term, and the Shire will need to work with landowners to develop an acceptable solution.

6.3 ENFORCEMENT AND COMPLIANCE

The Shire of Denmark will apply a proportionate, education-first enforcement approach to ensure compliance with dog control requirements, cycling restrictions and other permitted uses within Kooryunderup / Mount Hallowell. This strategy aims to balance community access and enjoyment with the protection of the Reserve's conservation, cultural and safety values.

Responsibilities: Enforcement will be undertaken by Shire Rangers, supported by Parks and Reserves staff as required. However, due to competing priorities and limited resources, Ranger presence cannot be maintained at all times and is often infrequent. For this reason, informal community policing—where Reserve users help keep each other accountable—is recognised as a key element in ensuring compliance and maintaining the values of Kooryunderup / Mount Hallowell.

Methods: Compliance will be supported through a combination of clear and consistent signage at reserve entry points, trailheads and key locations identifying permitted and prohibited activities; targeted Ranger patrols, particularly during peak visitation periods; community education and engagement, including information on alternative facilities for restricted activities; and monitoring and closure of unauthorised tracks or activities.

Escalation: Where non-compliance is identified, Rangers will initially apply an education and warning-based approach. Continued or deliberate breaches may result in formal compliance action, including infringements or prosecution under relevant Local Laws or legislation.

6.4 MONITORING AND REVIEW

To ensure the ongoing relevance and effectiveness of key management actions, a Monitoring and Review approach will be adopted. This approach recognises the necessity for adaptive management in response to emerging issues and opportunities as they arise. In addition to responsive adjustments, a formal comprehensive review will be conducted every five years. This review will include an updated Management Actions Table that clearly reports on progress and evaluates the effectiveness of implemented actions. Through this dual process of ongoing adjustment and scheduled review, management will remain responsive, evidence-based, and focused on achieving the Reserve's values and goals.

7 REFERENCES

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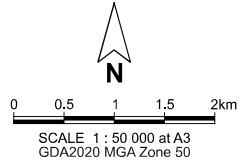
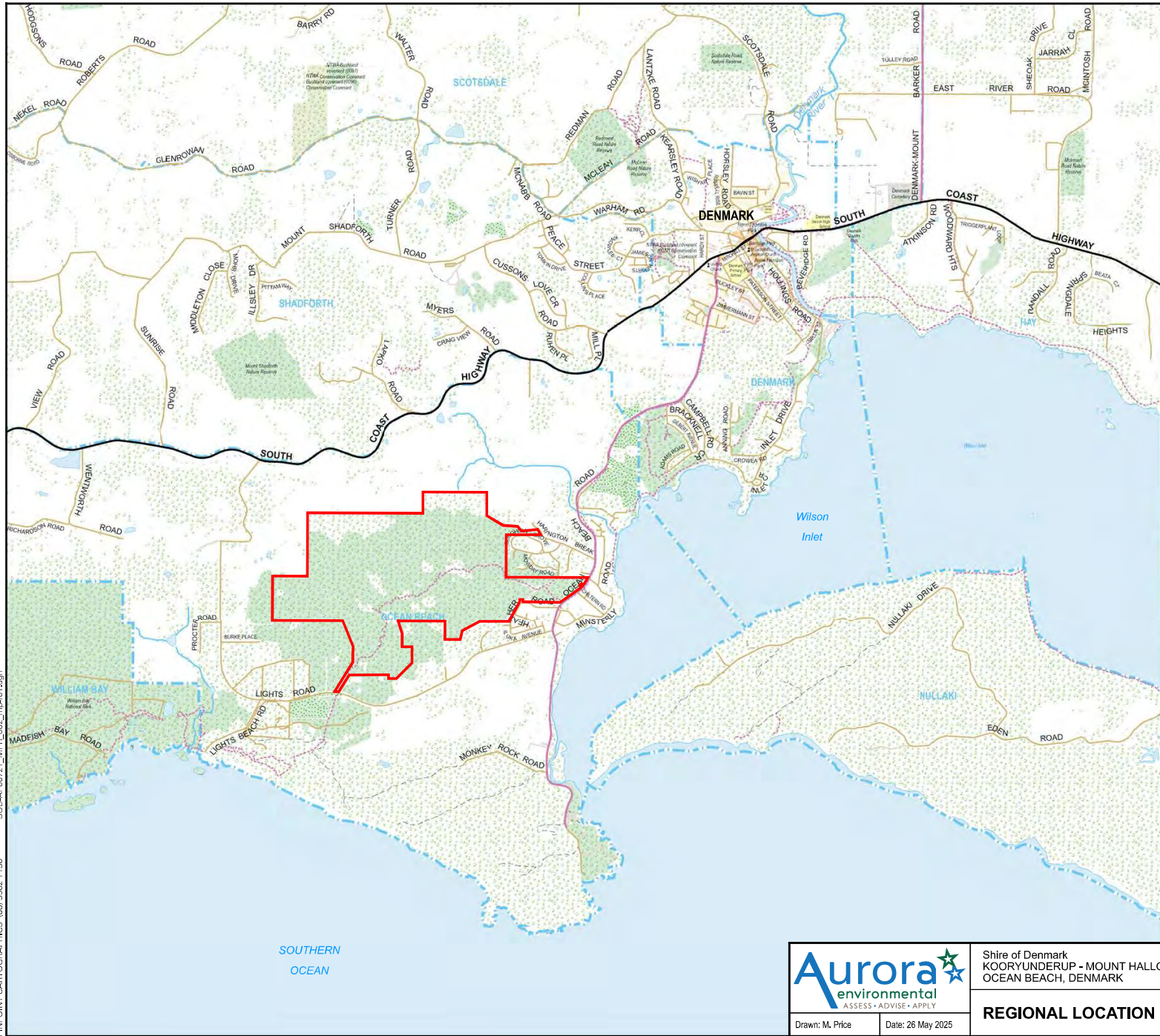
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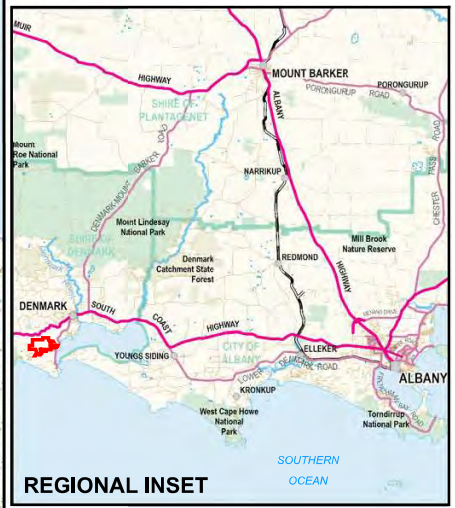
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FIGURES



Legend
— Reserve Boundary



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Shire of Denmark
 KOORYUNDERUP - MOUNT HALLOWELL MANAGEMENT PLAN 2025 - 2035
 OCEAN BEACH, DENMARK

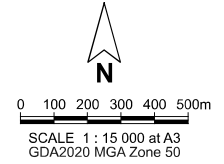
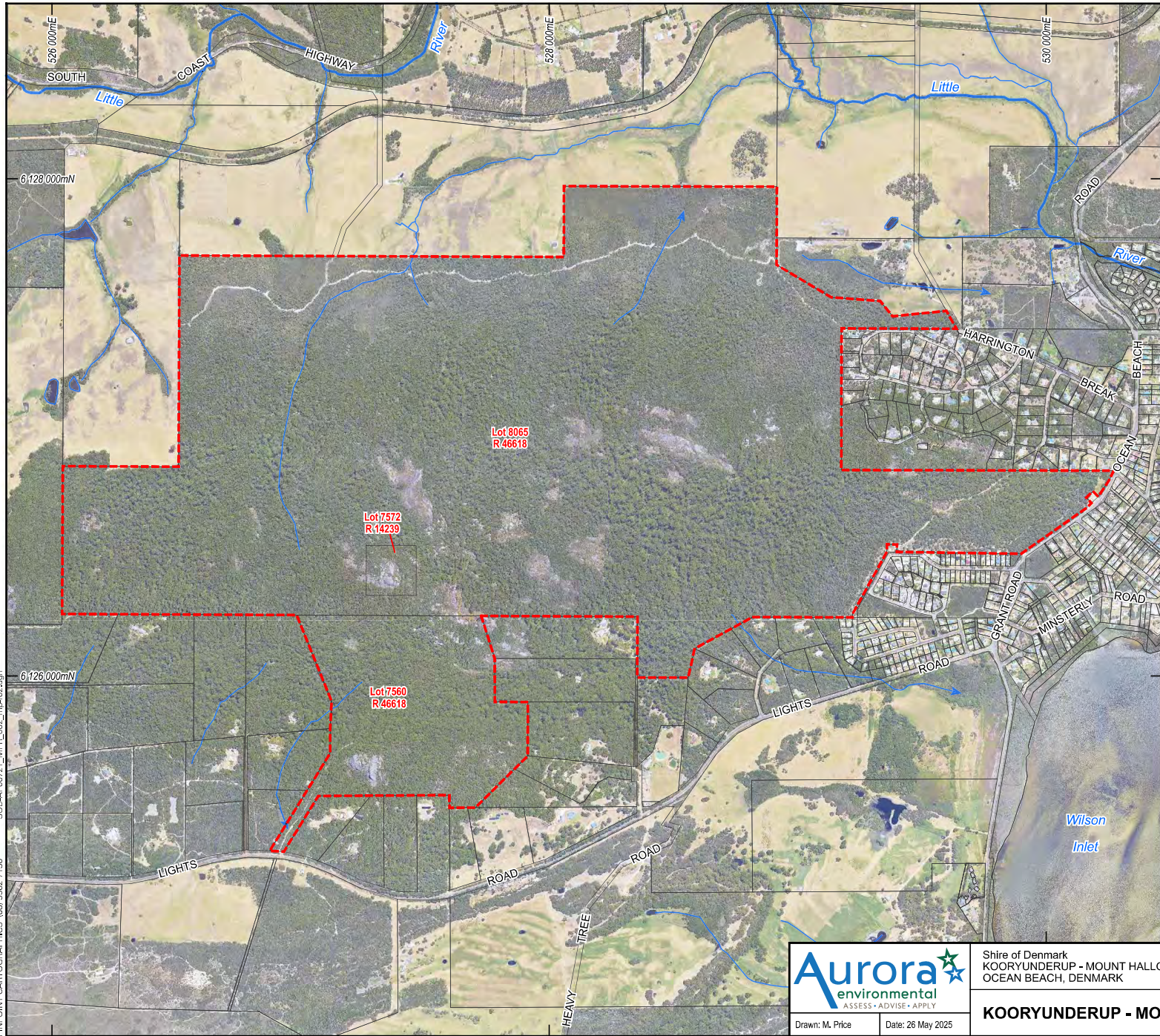
REGIONAL LOCATION

Drawn: M. Price Date: 26 May 2025

Figure 1

Job: SOD-AP00721

SOD-AP00721_MRF_002_mf-01.dgn PINPOINT CARTOGRAPHICS 089 9562 7136



Legend
 - - - Reserve Boundary
 — Cadastral Boundary

CADASTRAL SOURCE: Landgate, January 2025.
 AERIAL PHOTOGRAPH SOURCE: Landgate, flown January 2022.



Shire of Denmark
 KOORYUNDERUP - MOUNT HALLOWELL MANAGEMENT PLAN 2025 - 2035
 OCEAN BEACH, DENMARK

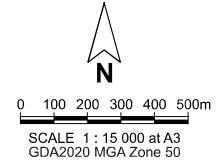
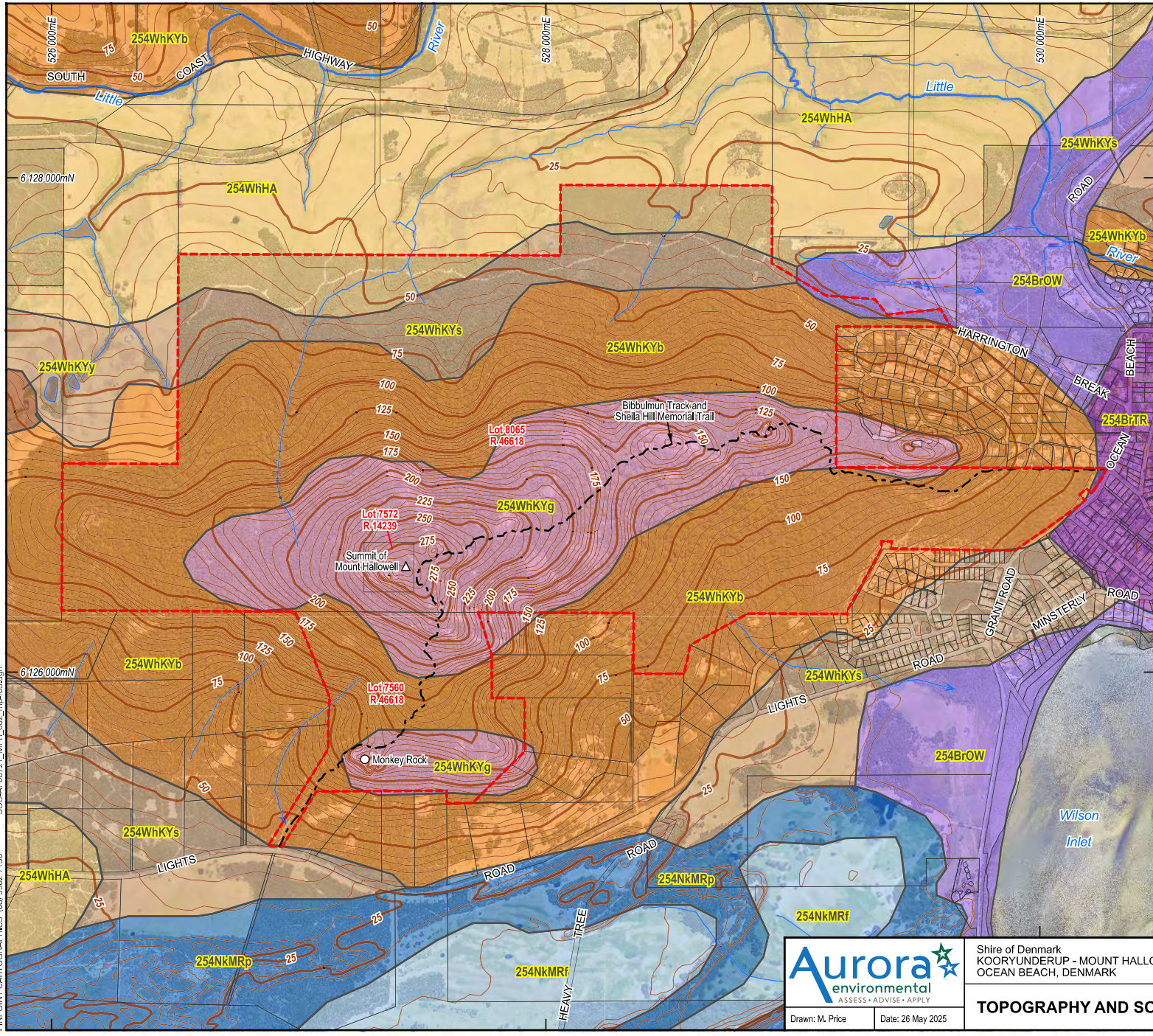
KOORYUNDERUP - MOUNT HALLOWELL

Drawn: M. Price Date: 26 May 2025

Figure 2

Job: SOD-AP00721

PINPOINT CARTOGRAPHICS (08) 9662 7136 SOD-AP00721_MPF_002.mxd-02.dgn



- Legend**
- - - Reserve Boundary
 - Cadastral Boundary
 - Topographic Contour
 - Watercourse
 - Bibbulmun Track

- Soil Types**
- 254BrOW - Owningup subsystem**
Plains with swamps, lunettes and dunes; Yellow solonchic soils, organic loams and diatomaceous earth; Podzols on dunes
 - 254BrTR - Trent subsystem**
Gravelly yellow duplex soils and laterite on crests; Leached sands with iron pan on flanks
 - 254NkMRf - Meerup podzols on interdune plains phase**
Podzols on interdune plains
 - 254NkMRp - Meerup podzols over calcareous sand phase**
Podzols over calcareous sand
 - 254WhHA - Hazelvale subsystem**
Narrow sandy plains, slight stream incision; Humus podzols on crests of spurs; Yellow duplex soils on valley flanks; Peaty podzols on minor valley floors
 - 254WhKYb - Keystone brown duplex phase**
Brown gravelly duplex soils and red of yellow earths; much laterite.
 - 254WhKYg - Keystone granite phase**
Granite outcrop
 - 254WhKYs - Keystone podzols phase**
Podzols
 - 254WhKYy - Keystone yellow duplex phase**
Gravelly yellow duplex soils

SOILS SOURCE: DPIRD, January 2025.
 CADASTRAL SOURCE: Landgate, January 2025.
 AERIAL PHOTOGRAPH SOURCE: Landgate, flown January 2022.

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Drawn: M. Price Date: 26 May 2025

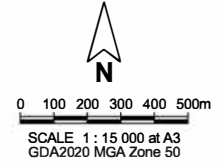
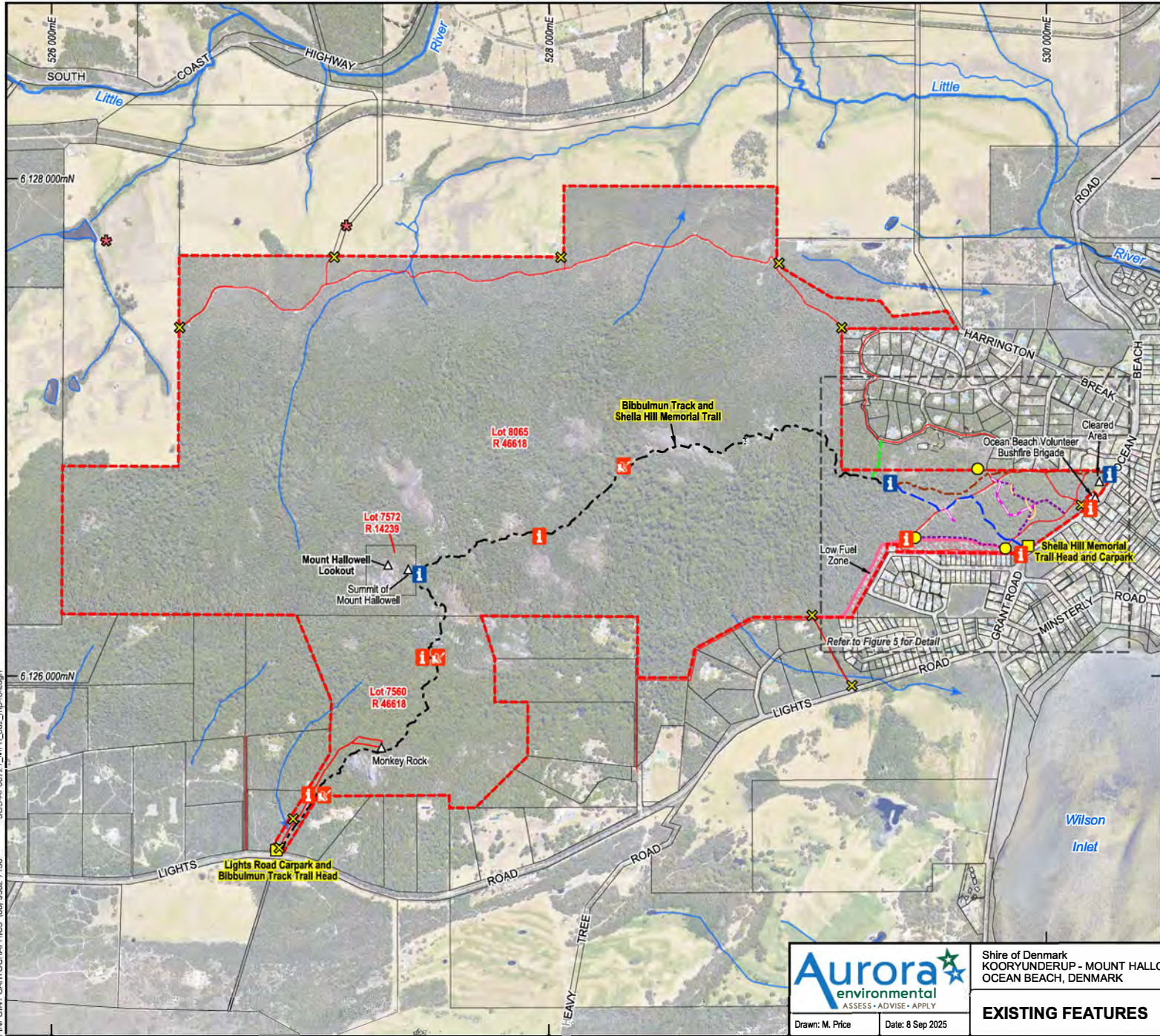
Shire of Denmark
 KOORYUNDERUP - MOUNT HALLOWELL MANAGEMENT PLAN 2025 - 2035
 OCEAN BEACH, DENMARK

TOPOGRAPHY AND SOILS

Figure 3

Job: SOD-AP00721

PINPOINT CARTOGRAPHICS (08) 9662 7136 SOD-AP00721_MRF_002_mpf-03.dgn



- Legend**
- Reserve Boundary
 - Cadastral Boundary
 - Watercourse
 - ✖ Emergency Access Via Farm
 - Emergency Access
 - Mountain Bike Trail and Jumps
 - Trail Previously Closed
 - Bibbulmun Track
 - Bibbulmun Track & Sheila Hill Memorial Trail
 - Sheila Hill Memorial Trail
 - Walk Trail
 - Access Walk Trail
 - Low Fuel Zone
 - ✖ Access Gate
 - Bollards
 - Car Park
 - I Wayfinding, Trailhead & Interpretive Signage
 - I Dieback Signage
 - B Boot Cleaning Station

CADASTRAL SOURCE: Landgate, January 2025.
 AERIAL PHOTOGRAPH SOURCE: Landgate, flown January 2022.

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Drawn: M. Price Date: 8 Sep 2025

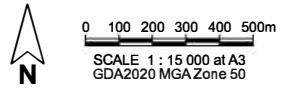
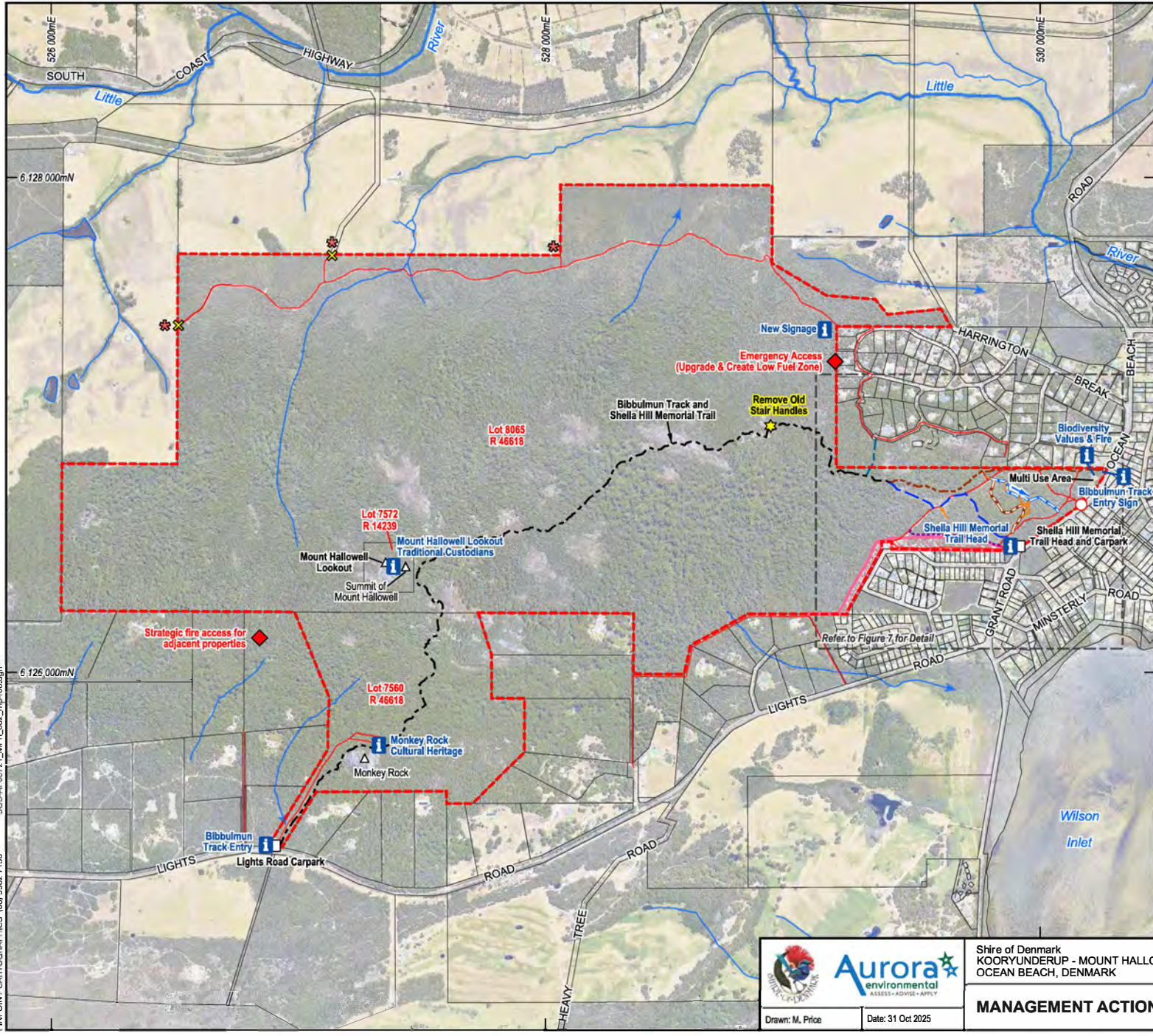
Shire of Denmark
 KOORYUNDERUP - MOUNT HALLOWELL MANAGEMENT PLAN 2025 - 2035
 OCEAN BEACH, DENMARK

EXISTING FEATURES

Figure 4

Job: SOD-AP00721

PINPOINT CARTOGRAPHICS 089 9662 7136 SOD-AP00721_MPR_002_mpf-04.dgn 6.126 000mN



- Legend**
- - - Site Boundary
 - Cadastral Boundary
 - Watercourse
 - Emergency Access Via Farm
 - Emergency Access
 - - - Bibbulmun Track
 - - - Bibbulmun Track & Sheila Hill Memorial Trail
 - Sheila Hill Memorial Trail
 - - - Walk Trail
 - Low Fuel Zone
 - Car Park
- Management Actions**
- Add Bollards for Emergency Access
 - Access Gate
 - ★ Infrastructure Removal
 - Wayfinding, Trailhead & Interpretive Signage
 - ◆ Emergency Access Upgrade
 - Trails – Close, Rehabilitate and Monitor
 - - - Access Walk Trail – Retain and Monitor
 - = Dog Walking Trail – Formalise and Monitor
 - = Cycling Trail – Formalise and Monitor

- Actions:**
- Delineate Lights Road carpark and improve drainage
 - Retain the cleared grass area to the north of South Coast Volunteer Bush Fire Brigade station for training and other low key activities
 - Upgrade signage (trail head signage at Lights Road car park for Bibbulmun Track/ Sheila Hill Memorial Trail)
 - Maintain boot cleaning stations and dieback information signage with support from Friends of Kooryunderup - Mount Hallowell
 - Install interpretive signage at the summit of Mount Hallowell, noting permission will be required from the Department of Planning, Land and Heritage
 - Upgrade drainage and resurface eroded areas of emergency access track from Lights Road car park to Monkey Rock
 - Install directional and interpretive signage for lookout at Monkey Rock (from walk trail)
 - Update dieback mapping in 2026 and evaluate every 10 years
- Signage:**
- Signage to be installed to reflect areas where dogs (with and without leash) and cycling are permitted
- CADASTRAL SOURCE: Landgate, January 2025.
AERIAL PHOTOGRAPH SOURCE: Landgate, flown January 2022.

Drawn: M. Price Date: 31 Oct 2025

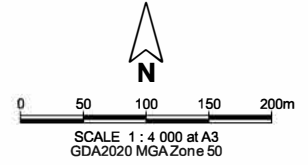
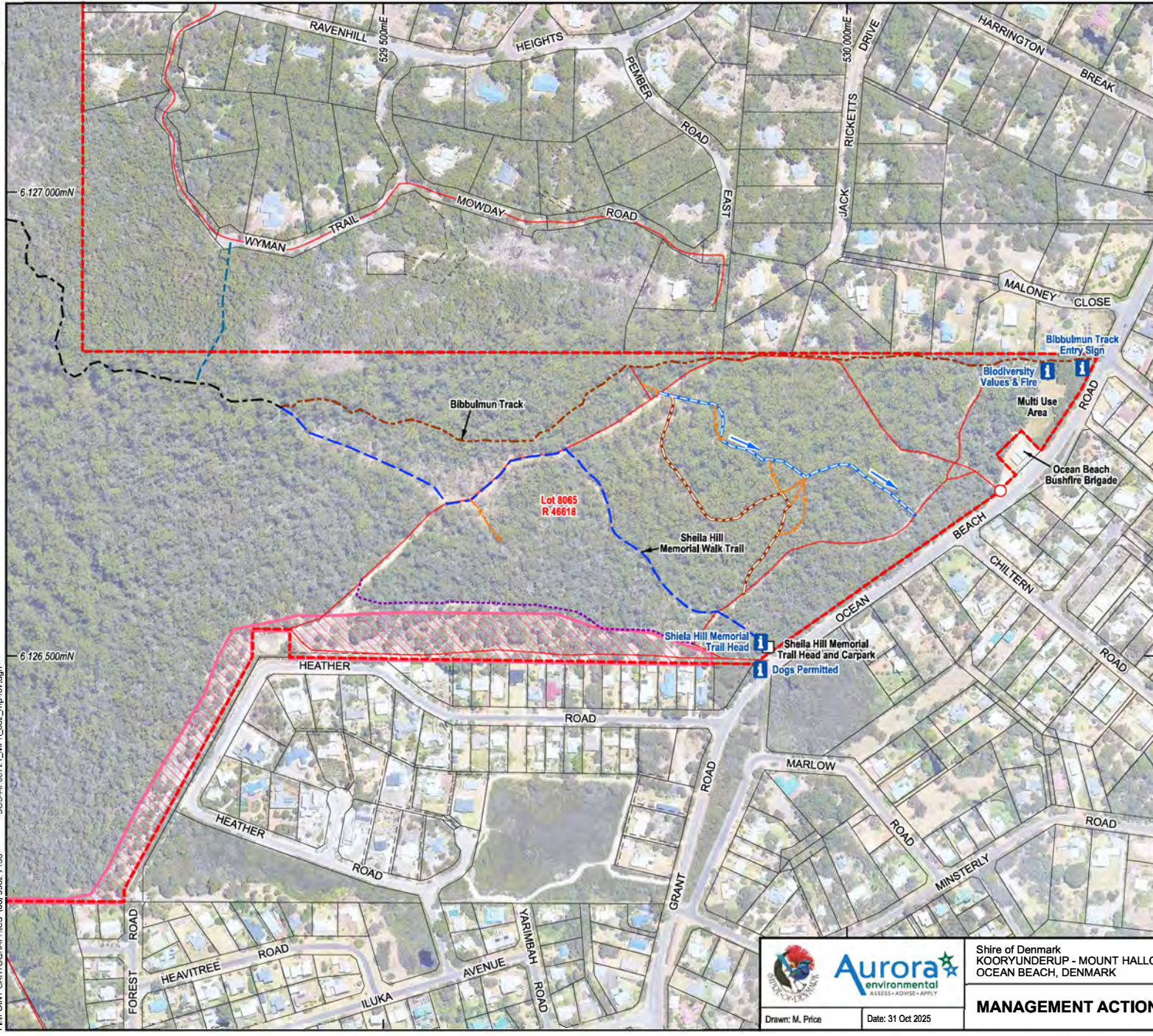
Shire of Denmark
KOORYUNDERUP - MOUNT HALLOWELL MANAGEMENT PLAN 2025 - 2035
OCEAN BEACH, DENMARK

MANAGEMENT ACTIONS

Figure 6

Job: SOD-AP00721

SOD-AP00721_MPR_02.mxd-06.dgn PINPOINT CARTOGRAPHICS (08) 9662 7136



- Legend**
- - - Site Boundary
 - Cadastral Boundary
 - Emergency Access
 - Bibbulmun Track
 - Bibbulmun Track & Sheila Hill Memorial Trail
 - Sheila Hill Memorial Trail
 - Walk Trail
 - Low Fuel Zone
 - Car Park
- Management Actions**
- Add Bollards for Emergency Access
 - i Wayfinding, Trailhead & Interpretive Signage
 - Trails – Close, Rehabilitate and Monitor
 - Access Walk Trail – Retain and Monitor
 - Dog Walking Trail – Formalise and Monitor
 - Cycling Trail – Formalise and Monitor

- Actions:**
- Retain the cleared grass area to the north of South Coast Volunteer Bush Fire Brigade station for training and other low key activities
 - Replace trailhead signage at Sheila Hill Memorial Trail head/ car park including interpretive signage about Sheila Hill
 - Replace Bibbulmun Track entry signage on Ocean Beach Road
 - Replace wayfinding markers for Sheila Hill Memorial Trail
 - Remediate emergency access from Trail head carpark (parallel to Heather Road) to improve drainage and resheet washed out areas
 - Close/Rehabilitate/Monitor OR Formalise/Monitor trails as indicated
 - Signage to be installed as described in Plan (dogs on leashes, etc)
 - Interpretive signage adjacent to Bibbulmun Track entry (Ocean Beach Road) regarding fire regimes, long unburnt status and biodiversity
 - Upgrade Sheila Hill Memorial Trail car park to delineate boundary and improve drainage
 - Monitor car park usage during peak times (e.g. school holidays)
 - Consider private use of Reserve by landowners (e.g. adjacent to Heather Road) and potential installation of access control gate(s) (in consultation with neighbouring landowners).
- Signage:**
- Signage to be installed to reflect areas where dogs (with and without leash) and cycling are permitted.

CADASTRAL SOURCE: Landgate, January 2025.
 AERIAL PHOTOGRAPH SOURCE: Landgate, flown January 2022.

Shire of Denmark
 KOORVUNDERUP - MOUNT HALLOWELL MANAGEMENT PLAN 2025 - 2035
 OCEAN BEACH, DENMARK

Drawn: M. Price Date: 31 Oct 2025

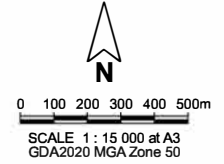
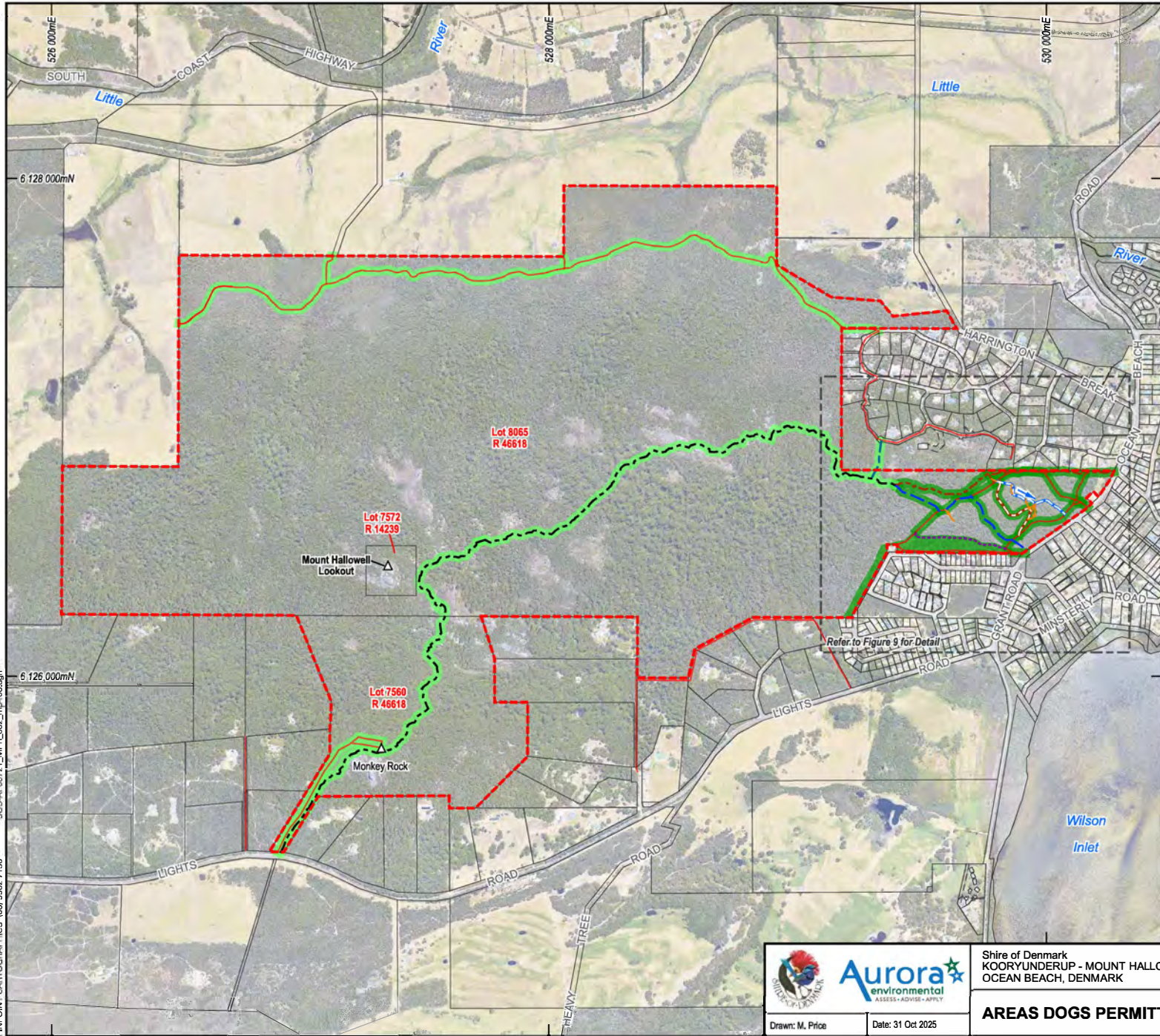
MANAGEMENT ACTIONS - EASTERN AREA

Figure 7

Job: SOD-AP00721

SOD-AP00721_MPR_002_mpl-07.dgn

PINPOINT CARTOGRAPHICS (08) 9662 7136



- Legend**
- - - Reserve Boundary
 - Cadastral Boundary
 - Emergency Access
 - - - Bibbulmun Track
 - - - Bibbulmun Track & Sheila Hill Memorial Trail
 - Sheila Hill Memorial Trail
 - - - Walk Trail
 - Trails – Close, Rehabilitate and Monitor
 - - - Access Walk Trail – Retain and Monitor
 - - - Dog Walking Trail – Formalise and Monitor
 - - - Cycling Trail – Formalise and Monitor
- Areas Dogs Permitted**
- Dogs Permitted Without Leash
 - Dogs Permitted With Leash

CADASTRAL SOURCE: Landgate, January 2025.
 AERIAL PHOTOGRAPH SOURCE: Landgate, flown January 2022.

Shire of Denmark
 KOORYUNDERUP - MOUNT HALLOWELL MANAGEMENT PLAN 2025 - 2035
 OCEAN BEACH, DENMARK

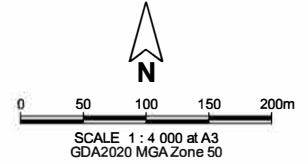
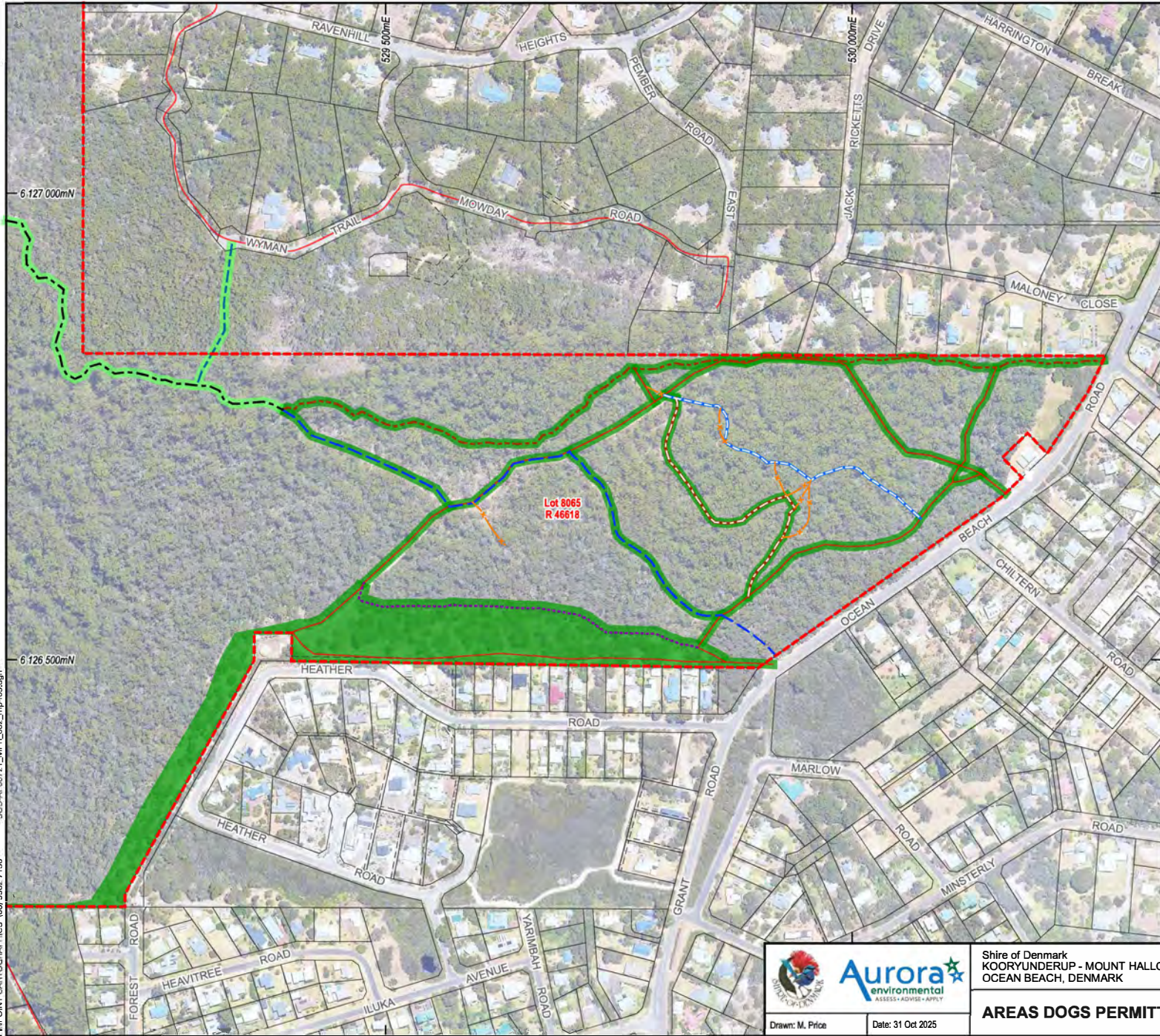
Drawn: M. Price Date: 31 Oct 2025

AREAS DOGS PERMITTED

Figure 8

Job: SOD-AP00721

PINPOINT CARTOGRAPHICS (08) 9662 7136 SOD-AP00721_MPR_02.mxd-08.dgn



- Legend**
- - - Reserve Boundary
 - Cadastral Boundary
 - Emergency Access
 - - - Bibbulmun Track
 - - - Bibbulmun Track & Sheila Hill Memorial Trail
 - Sheila Hill Memorial Trail
 - · · Walk Trail
 - Trails – Close, Rehabilitate and Monitor
 - - - Access Walk Trail – Retain and Monitor
 - - - Dog Walking Trail – Formalise and Monitor
 - - - Cycling Trail – Formalise and Monitor
- Areas Dogs Permitted**
- Dogs Permitted Without Leash
 - Dogs Permitted With Leash

CADASTRAL SOURCE: Landgate, January 2025.
 AERIAL PHOTOGRAPH SOURCE: Landgate, flown January 2022.

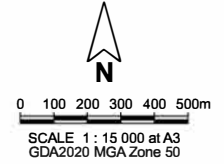
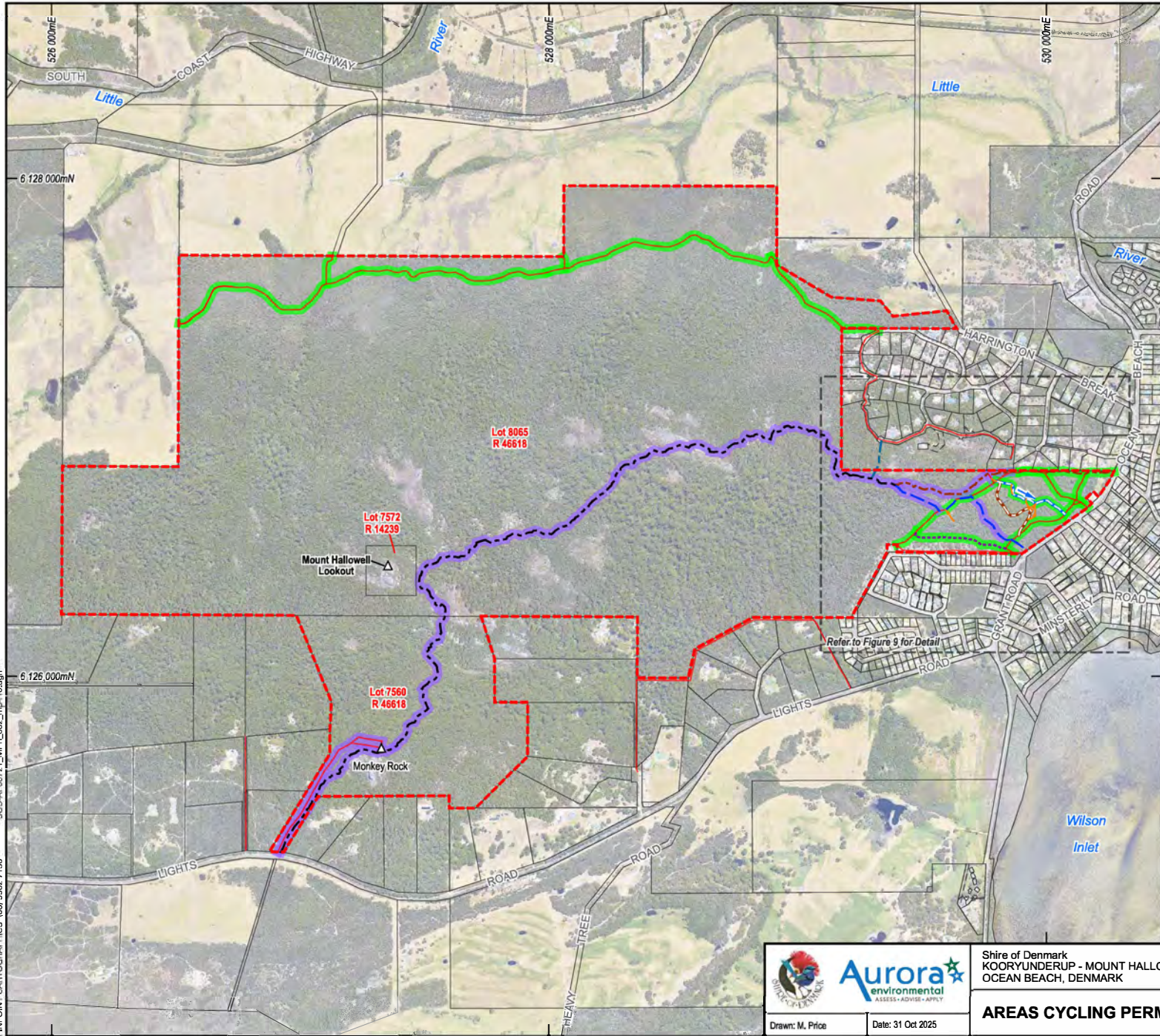
Shire of Denmark
 KOORYUNDERUP - MOUNT HALLOWELL MANAGEMENT PLAN 2025 - 2035
 OCEAN BEACH, DENMARK

Drawn: M. Price Date: 31 Oct 2025

AREAS DOGS PERMITTED - EASTERN AREA

Figure 9
 Job: SOD-AP00721

SOD-AP00721_MPR_02.mxd
 P:\POINT CARTOGRAPHICS (09) 9667 7136



- Legend**
- - - Reserve Boundary
 - Cadastral Boundary
 - Emergency Access
 - - - Bibbulmun Track
 - - - Bibbulmun Track & Sheila Hill Memorial Trail
 - Sheila Hill Memorial Trail
 - - - Walk Trail
 - Trails – Close, Rehabilitate and Monitor
 - Access Walk Trail – Retain and Monitor
 - Dog Walking Trail – Formalise and Monitor
 - Cycling Trail – Formalise and Monitor
- Areas Cycling Permitted**
- Low Key Cycling Permitted
 - Cycling Not Permitted

CADASTRAL SOURCE: Landgate, January 2025.
 AERIAL PHOTOGRAPH SOURCE: Landgate, flown January 2022.

Shire of Denmark
 KOORYUNDERUP - MOUNT HALLOWELL MANAGEMENT PLAN 2025 - 2035
 OCEAN BEACH, DENMARK

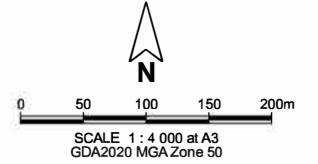
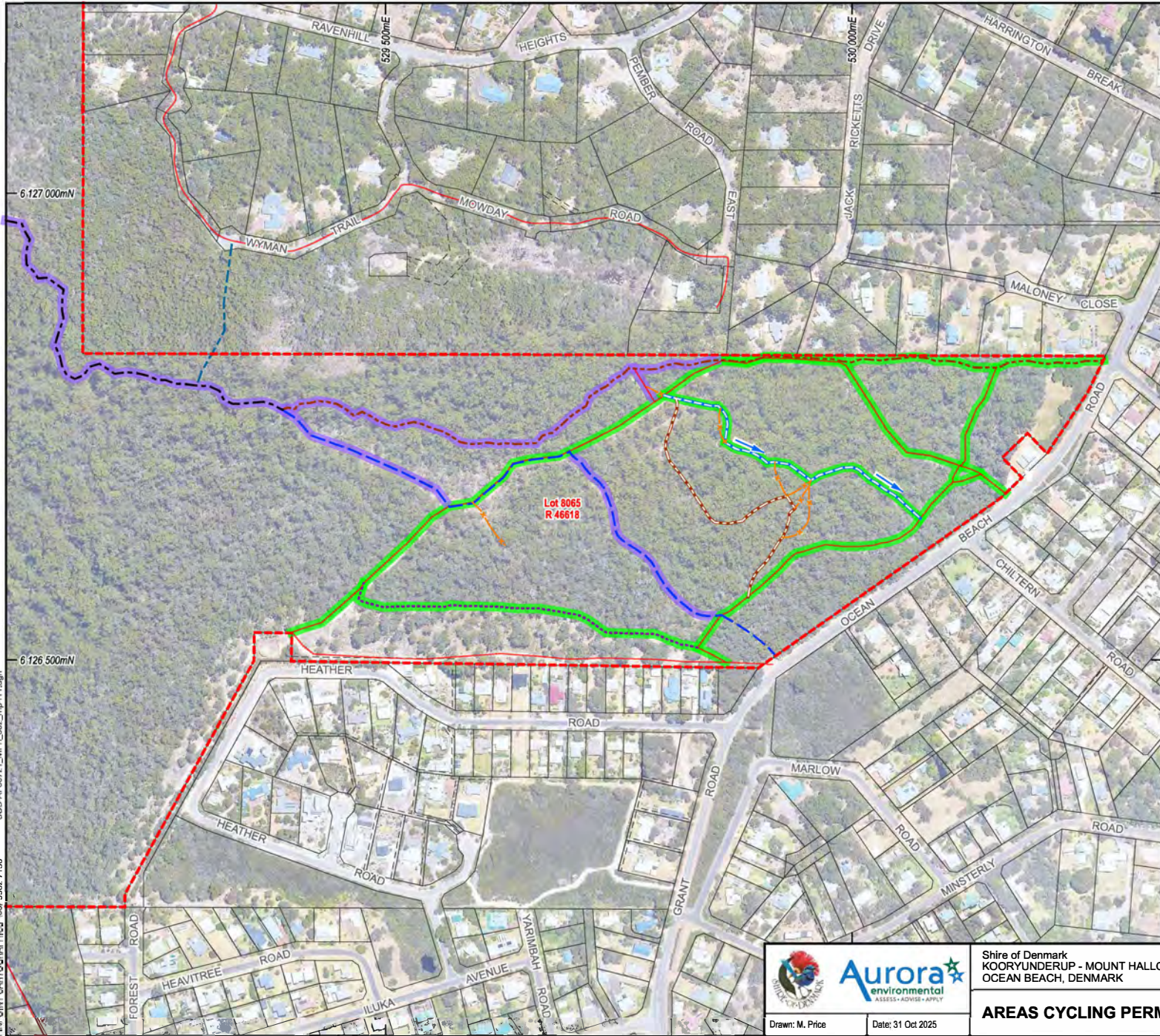
Drawn: M. Price Date: 31 Oct 2025

AREAS CYCLING PERMITTED

Figure 10

Job: SOD-AP00721

PINPOINT CARTOGRAPHICS (08) 9662 7136 SOD-AP00721_MPR_02.mxd 10.dgn 6.126.000mN 6.128.000mN 526.000mE 528.000mE 530.000mE



- Legend**
- - - Reserve Boundary
 - Cadastral Boundary
 - Emergency Access
 - - - Bibbulmun Track
 - - - Bibbulmun Track & Sheila Hill Memorial Trail
 - Sheila Hill Memorial Trail
 - Walk Trail
 - Trails – Close, Rehabilitate and Monitor
 - - - Access Walk Trail – Retain and Monitor
 - - - Dog Walking Trail – Formalise and Monitor
 - Cycling Trail – Formalise and Monitor
- Areas Cycling Permitted**
- Low Key Cycling Permitted
 - Cycling Not Permitted

CADASTRAL SOURCE: Landgate, January 2025.
 AERIAL PHOTOGRAPH SOURCE: Landgate, flown January 2022.

Shire of Denmark
 KOORVUNDERUP - MOUNT HALLOWELL MANAGEMENT PLAN 2025 - 2035
 OCEAN BEACH, DENMARK

Drawn: M. Price Date: 31 Oct 2025

AREAS CYCLING PERMITTED - EASTERN AREA

Figure 11

Job: SOD-AP00721

SOD-AP00721_MPR_002_mpr-f11.dgn
 6.126 500mN
 6.127 000mN
 529 500mE
 PINPOINT CARTOGRAPHICS 088 9662 7136

APPENDICES

APPENDIX 1

Flora List

FLORA SPECIES LIST KOORYUNDERUP – MOUNT HALLOWELL

Sourced from 2023 Citizen Science Bioblitz and iNaturalist (Denmark Environment Centre, 2023)

FLORA		
NO.	SCIENTIFIC NAME	COMMON NAME
1	<i>Acacia browniana</i>	Brown's Wattle
2	<i>Acacia browniana var. obscura</i>	Brown's Wattle
3	<i>Acacia cyclops</i>	Western Coastal Wattle
4	<i>Acacia divergens</i>	Sail-boat Wattle
5	<i>Acacia drummondi</i>	Drummond's Wattle
6	<i>Acacia hastulata</i>	Prickly Swamp Wattle
7	<i>Acacia littorea</i>	Shark Tooth Wattle
8	<i>Acacia longifolia</i>	Longleaf Wattle
9	<i>Acacia myrtifolia</i>	Myrtle Wattle
10	<i>Acacia pentadenia</i>	Karri Wattle
11	<i>Acacia pulchella</i>	Prickly Moses
12	<i>Acacia pulchella var. pulchella</i>	Prickly Moses
13	<i>Acacia urophylla</i>	Net-veined Wattle
14	<i>Acacia varia</i>	
15	<i>Actinotus glomeratus</i>	
16	<i>Actinotus omnifertilis</i>	
17	<i>Adenanthos cuneatus</i>	Coastal Jugflower
18	<i>Adenanthos obovatus</i>	Jugflower
19	<i>Agonis flexuosa</i>	Western Australian Peppermint
20	<i>Agonis flexuosa var. flexuosa</i>	Peppermint
21	<i>Agonis flexuosa var. latifolia</i>	Peppermint
22	<i>Agonis theiformis</i>	
23	<i>Agrostocrinum scabrum</i>	Blue Grass Lily
24	<i>Allocasuarina decussata</i>	Karri Sheoak
25	<i>Allocasuarina fraseriana</i>	Western Sheoak
26	<i>Allocasuarina humilis</i>	Dwarf Sheoak
27	<i>Amperea simulans</i>	
28	<i>Amphipogon species</i>	
29	<i>Anarthria gracilis</i>	
30	<i>Anarthria prolifera</i>	
31	<i>Anarthria scabra</i>	
32	<i>Andersonia caerulea</i>	Foxtails
33	<i>Andersonia caerulea</i> subsp. <i>Diminuta</i>	
34	<i>Andersonia sprengelioides</i>	
35	<i>Andersonia virolens</i>	
36	<i>Anigozanthos flavidus</i>	Tall Kangaroo Paw
37	<i>Anigozanthos preissii</i>	Albany Catpaw
38	<i>Anthocercis sylvicola</i> PRIORITY 3	
39	<i>Aotus intermedia</i>	
40	<i>Aphella cyperoides</i>	
41	<i>Asplenium aethiopicum</i>	Ethiopian spleenwort
42	<i>Asplenium flabellifolium</i>	Necklace Fern

FLORA SPECIES LIST KOORYUNDERUP – MOUNT HALLOWELL

Sourced from 2023 Citizen Science Bioblitz and iNaturalist (Denmark Environment Centre, 2023)

FLORA		
NO.	SCIENTIFIC NAME	COMMON NAME
43	<i>Asteridea pulverulenta</i>	
44	<i>Banksia dallaneyi</i>	
45	<i>Banksia grandis</i>	Giant Banksia
46	<i>Banksia ilicifolia</i>	Holly-Leaved Banksia
47	<i>Banksia littoralis</i>	Swamp Banksia
48	<i>Banksia quercifolia</i>	Oak-leaved Banksia
49	<i>Banksia serra</i> PRIORITY 4	Serrate-leaved Dryandra
50	<i>Barbula calycina</i>	
51	<i>Beaufortia decussata</i> / <i>Melaleuca transversa</i>	Gravel Bottlebrush
52	<i>Beaufortia sparsa</i>	Swamp Bottlebrush
53	<i>Beaufortia sparsa</i> / <i>Melaleuca sparsa</i>	Swamp Bottlebrush
54	<i>Billardiera floribunda</i>	White-flowered Billardiera
55	<i>Billardiera heterophylla</i>	Australian Bluebell
56	<i>Billardiera variifolia</i>	
57	<i>Boronia alata</i>	Winged Boronia
58	<i>Boronia crenulata</i>	Aniseed Boronia
59	<i>Boronia gracilipes</i>	Karri Boronia
60	<i>Boronia molloyae</i>	Tall Boronia
61	<i>Boronia spathulata</i>	
62	<i>Boronia stricta</i>	
63	<i>Borya sphaerocephala</i>	Pincushions
64	<i>Bossiaea linophylla</i>	
65	<i>Bossiaea praetermissa</i>	
66	<i>Brachyloma baxteri</i>	
67	<i>Brachythecium albicans</i>	Whitish Feather-moss
68	<i>Braunia imberbis</i>	
69	<i>Bryum argenteum</i>	
70	<i>Bryum caespiticium</i>	
71	<i>Bryum dichotomum</i>	
72	<i>Burchardia congesta</i>	Milkmaids
73	<i>Caesia occidentalis</i>	Pale Grass Lily
74	<i>Caladenia attingens</i>	Forest Mantis-orchid
75	<i>Caladenia browni</i>	Karri Spider Orchid
76	<i>Caladenia cairnsiana</i>	Zebra Orchid
77	<i>Caladenia flava</i>	Cowslip Orchid
78	<i>Caladenia flava</i> subsp. <i>flava</i>	Cowslip Orchid
79	<i>Caladenia flava</i> subsp. <i>sylvestris</i>	Cowslip Orchid
80	<i>Caladenia latifolia</i>	Pink Fairies
81	<i>Caladenia longicauda</i>	Common White Spider Orchid
82	<i>Caladenia macrostylis</i>	Leaping Spider Orchid
83	<i>Caladenia nana</i>	Pink Fan Orchid
84	<i>Caladenia pectinata</i>	King Spider Orchid

FLORA SPECIES LIST KOORYUNDERUP – MOUNT HALLOWELL

Sourced from 2023 Citizen Science Bioblitz and iNaturalist (Denmark Environment Centre, 2023)

85	<i>Caladenia reptans</i>	Little Pink Fairy Orchid
86	<i>Caladenia reptans</i> subsp. <i>reptans</i>	Little Pink Fairy Orchid
87	<i>Calandrinia species</i>	
88	<i>Caleana nigrita</i>	Flying Duck Orchid
89	<i>Callistachys lanceolata</i>	Native Willow/Wonnich
90	<i>Callistemon glaucus/Melaleuca glauca</i>	Albany Bottlebrush
91	<i>Campylopus australis</i>	
92	<i>Campylopus bicolor</i>	
93	<i>Campylopus clavatus</i>	
94	<i>Campylopus introflexus</i>	Heath Star-moss
95	<i>Cassytha glabella</i>	Slender Devil's Twine
96	<i>Centaurium erythraea</i>	Common Centaury
97	<i>Cephaloziella arctica</i> subsp. <i>subantarctica</i>	
98	<i>Ceramanus clatritexta</i>	
99	<i>Chaetophyllopsis whiteleggi</i>	
100	<i>Chamaescilla corymbosa</i>	Blue Stars
101	<i>Chamaescilla corymbosa</i> var. <i>paradoxa</i>	Blue Squill
102	<i>Cheilanthes austrotenuifolia</i>	Rock Fern
103	<i>Chiloscyphus semiteres</i>	
104	<i>Chiloscyphus species</i>	Leafy Liverworts
105	<i>Choretrum lateriflorum</i>	
106	<i>Chorilaena quercifolia</i>	Karri Oak
107	<i>Chorizema diversifolium</i>	
108	<i>Chorizema ilicifolium</i>	Holly flame pea
109	<i>Chorizema reticulatum</i>	Showy Flame Pea
110	<i>Chorizema retrorsum</i>	Holly Flame Pea
111	<i>Clematis pubescens</i>	Old Man's Beard
112	<i>Codonoblepharon menziesii</i>	
113	<i>Comesperma calymega</i>	Blue Spike Milkwort
114	<i>Comesperma confertum</i>	
115	<i>Comesperma flavum</i>	
116	<i>Comesperma virgatum</i>	Milkwort
117	<i>Comesperma volubile</i>	Climbing Milkwort
118	<i>Commersonia corniculata</i>	
119	<i>Commersonia corylifolia</i>	Hazel-leaved Rulingia
120	<i>Conostylis setigera</i>	Bristly Cottonhead
121	<i>Corymbia calophylla</i>	Marri
122	<i>Corymbia ficifolia</i>	Red-flowering gum (planted)
123	<i>Crassula decumbens</i>	Rufous Stonecrop
124	<i>Crowea angustifolia</i> var. <i>platyphylla</i>	Crowea
125	<i>Cryptostylis ovata</i>	Slipper Orchid
126	<i>Cyanicula sericea</i>	Silky Blue Orchid
127	<i>Cyrtostylis huegeli</i>	Midge Orchid
128	<i>Cyrtostylis robusta</i>	Mosquito Orchid

FLORA SPECIES LIST KOORYUNDERUP – MOUNT HALLOWELL

Sourced from 2023 Citizen Science Bioblitz and iNaturalist (Denmark Environment Centre, 2023)

129	<i>Dampiera alata</i>	Winged-stem Dampiera
130	<i>Dampiera diversifolia</i>	
131	<i>Dampiera hederacea</i>	Karri Dampiera
132	<i>Dampiera leptoclada</i>	
133	<i>Dampiera linearis</i>	Common Dampiera
134	<i>Darwinia vestita</i>	Pom-pom Darwinia
135	<i>Dasypogon bromelifolius</i>	Drumsticks
136	<i>Daviesia cordata</i>	Bookleaf
137	<i>Daviesia inflata</i>	
138	<i>Desmocladius fasciculatus</i>	
139	<i>Desmocladius flexuosus</i>	
140	<i>Dicranoloma diaphanoneuron</i>	
141	<i>Didymodon subtorquatus</i>	
142	<i>Dielsiodoxa lycopodioides</i>	
143	<i>Diplasiolejeuna plicatiloba</i>	Tiny Leafy Liverwort
145	<i>Disa bracteata</i> *	Bract Disa
146	<i>Ditrichum cylindricarpum</i>	
147	<i>Ditrichum difficile</i>	
148	<i>Diuris jonesi</i>	Dunsborough Donkey Orchid
149	<i>Diuris longifolia</i>	Purple Pansy Orchid
150	<i>Drakaea glyptodon</i>	King-in-his-carriage
151	<i>Drakaea livida</i>	Warty Hammer Orchid
152	<i>Drakaea thynniphila</i>	Narrow-lipped Hammer Orchid
153	<i>Drosera collina</i>	
154	<i>Drosera erythrogyne</i>	
155	<i>Drosera erythroyiza</i>	Red Ink Sundew
156	<i>Drosera fimbriata</i> PRIORITY 4	Manypeaks Sundew
157	<i>Drosera glanduligera</i>	Pimpernel Sundew
158	<i>Drosera huegeli</i>	Bold Sundew
159	<i>Drosera macrantha</i>	Bridal Rainbow
160	<i>Drosera microphylla</i>	Golden Rainbow
161	<i>Drosera modesta</i>	
162	<i>Drosera pulchella</i>	Pretty Sundew
163	<i>Elythranthera brunonis</i>	Purple Enamel Orchid
164	<i>Eriochilus dilatatus</i>	White Bunny Orchid
165	<i>Eucalyptus cornuta</i>	Yate
166	<i>Eucalyptus cornuta</i>	River Yate
167	<i>Eucalyptus diversicolor</i>	Karri
168	<i>Eucalyptus marginata</i>	Jarrah
169	<i>Eucalyptus megacarpa</i>	Bullich
170	<i>Eucalyptus patens</i>	Common Blackbutt
171	<i>Euchiton collinus</i>	
172	<i>Eutaxia myrtifolia</i>	
173	<i>Eutaxia parvifolia</i>	

FLORA SPECIES LIST KOORYUNDERUP – MOUNT HALLOWELL

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174	<i>Evandra aristata</i>	
175	<i>Fissidens curvatus</i>	
176	<i>Fissidens species</i>	
177	<i>Fissidens taylori</i>	
178	<i>Fissidens tenellus</i>	
179	<i>Fossombronia species</i>	
180	<i>Frullania falciloba</i>	
181	<i>Frullania pentapleura</i>	
182	<i>Frullania probosciphora</i>	
183	<i>Gastrodia lacista</i>	Potato Orchid
184	<i>Gastrolobium browni</i>	
185	<i>Glischrocaryon racemosum</i>	Shrubby Raspwort
186	<i>Gompholobium confertum</i>	
187	<i>Gompholobium knightianum</i>	Handsome Wedge Pea
188	<i>Gompholobium ovatum</i>	
189	<i>Gompholobium polymorphum</i>	Twining Gompholobium
190	<i>Gompholobium shuttleworthii</i>	
191	<i>Gompholobium tomentosum</i>	Hairy Yellow Pea
192	<i>Gonocarpus benthami</i>	
193	<i>Gonocarpus diffusus</i>	
194	<i>Goodenia eatoniana</i>	
195	<i>Goodenia macrophylla</i>	Large-leaved Velleia
196	<i>Goodenia pusilla</i>	
197	<i>Goodenia sp. South Coast</i> PRIORITY 3	
198	<i>Goodenia trinervis</i>	Common Velleia
199	<i>Grevillea quercifolia</i>	Oak-leaf Grevillea
200	<i>Grevillea trifida</i>	
201	<i>Gymnostomum calcareum</i>	Blunt-leaf Tufa-Moss
202	<i>Haemodorum paniculatum</i>	Mardja/Born
203	<i>Haemodorum simplex</i>	
204	<i>Haemodorum spicatum</i>	Bloodroot/Mean
205	<i>Hakea amplexicaulis</i>	Prickly Hakea
206	<i>Hakea florida</i>	
207	<i>Hakea linearis</i>	
208	<i>Hakea ruscifolia</i>	Candle Hakea
209	<i>Hakea varia</i>	Variable-leaved Hakea
210	<i>Haloragodedron racemosum/Glischrocaryon racemosum</i>	Shrubby Raspwort
211	<i>Hardenbergia comptoniana</i>	Native Wisteria
212	<i>Hedwigia ciliata</i>	Ciliate Hoarmoss
213	<i>Hemigenia humilis</i>	
214	<i>Hemigenia podalyrina</i>	
215	<i>Hibbertia amplexicaulis</i>	
216	<i>Hibbertia cuneiformis</i>	Cutleaf Hibbertia
217	<i>Hibbertia cunninghami</i>	

FLORA SPECIES LIST KOORYUNDERUP – MOUNT HALLOWELL

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218	<i>Hibbertia furfuracea</i>	
219	<i>Hibbertia pilosa</i>	
220	<i>Hovea chorizemifolia</i>	Holly-Leaved Hovea
221	<i>Hovea elliptica</i>	Tree Hovea
222	<i>Hovea trisperma</i>	Common Hovea
223	<i>Hydrocotyle alata</i>	
224	<i>Hypnum cupressiforme</i>	
225	<i>Hypocalymma strictum</i>	Pink Myrtle
226	<i>Hypolaena fastigiata</i>	Tassel Rope-rush
227	<i>Ischyrodon lepturus</i>	Feather Mosses
228	<i>Isopogon longifolius</i>	Long-leaved Isopogon
229	<i>Isopogon sphaerocephalus</i>	Drumstick Isopogon
230	<i>Isotropis cuneifolia</i>	Granny Bonnets
231	<i>Jacksonia horrida</i>	
232	<i>Johnsonia lupulina</i>	Hooded Lily
233	<i>Kennedia coccinea</i>	Coral Vine
234	<i>Kingia australis</i>	bullanock
235	<i>Kunzea ericifolia</i>	Spearwood
236	<i>Kunzea ericifolia</i> subsp. <i>ericifolia</i>	Spearwood
237	<i>Kunzea sulphurea</i>	Spearwood
238	<i>Kurzia compacta</i>	
239	<i>Lasiopetalum floribundum</i>	
240	<i>Lavandula stoechas</i> *	Topped Lavender
241	<i>Laxmannia grandiflora</i>	
242	<i>Laxmannia minor</i>	
243	<i>Lepidosperma effusum</i>	Riverside Sword Sedge
244	<i>Lepidosperma gladiatum</i>	Coastal Sword Sedge
245	<i>Lepidosperma gracile</i>	
246	<i>Lepidosperma squamatum</i>	
247	<i>Lepidozia species</i>	Leafy Liverworts
248	<i>Leporella fimbriata</i>	Hare Orchid
249	<i>Leptobryum pyriforme</i>	
250	<i>Leptocarpus elegans</i>	
251	<i>Leptocarpus scoparius</i>	Velvet Rush
252	<i>Leptocarpus tenax</i>	
253	<i>Leptoceras menziesi</i>	Rabbit Orchid
254	<i>Leptomeria scrobiculata</i>	
255	<i>Leptomeria squarrulosa</i>	
256	<i>Lepyrodia extensa</i> PRIORITY 2	
257	<i>Lethocolea pansa</i>	
258	<i>Lethocolea squamata</i>	
259	<i>Leucobryum subchlorophyllum</i>	
260	<i>Leucopogon alternifolius</i> PRIORITY 3	
261	<i>Leucopogon australis</i>	Spiked Beard-heath

FLORA SPECIES LIST KOORYUNDERUP – MOUNT HALLOWELL

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262	<i>Leucopogon capitellatus</i>	
263	<i>Leucopogon distans</i>	
264	<i>Leucopogon glabellus</i>	
265	<i>Leucopogon obovatus</i> subsp. <i>revolutus</i>	
266	<i>Leucopogon parviflorus</i>	Coastal Beard-heath
267	<i>Leucopogon unilateralis</i>	
268	<i>Leucopogon verticillatus</i>	Tassel Bush/Njorr-lee
269	<i>Levenhookia pusilla</i>	Tiny Stylewort
270	<i>Lindsaea linearis</i>	Screw Fern
271	<i>Lobelia anceps</i>	Punakuru
272	<i>Lobelia gibbosa</i>	Tall Lobelia
273	<i>Lobelia rhombifolia</i>	
274	<i>Logania vaginalis</i>	White Spray
275	<i>Lomandra drummondii</i>	
276	<i>Lomandra nigricans</i>	
277	<i>Lomandra pauciflora</i>	
278	<i>Lomandra purpurea</i>	
279	<i>Lomandra sericea</i>	Silky Mat Rush
280	<i>Lophocolea semiteres</i>	Southern Crestwort
281	<i>Lotus species*</i>	Bird's-foot Trefoils and Deervetches
282	<i>Lyperanthus serratus</i>	Rattle Beaks
283	<i>Macrocoma tenuis</i>	Joint-toothed Mosses
284	<i>Macrozamia riedlei</i>	Zamia Palm
285	<i>Marianthus drummondianus</i>	
286	<i>Marianthus sylvaticus</i>	
287	<i>Marianthus tenuis</i>	
288	<i>Melaleuca microphylla</i>	
289	<i>Melaleuca thymoides</i>	
290	<i>Mesomelaena tetragona</i>	Semaphore Sedge
291	<i>Microtis media</i>	Tall Mignonette Orchid
292	<i>Microtis media</i> subsp. <i>media</i>	Common Mignonette Orchid
293	<i>Mirbelia dilatata</i>	Holly-leaved Mirbelia
294	<i>Mitthenia plumula</i>	Southern Goblin's Gold
295	<i>Monotaxis occidentalis</i>	
296	<i>Myoporum insulare</i>	Blueberry Tree
297	<i>Olax phyllanthi</i>	
298	<i>Olearia muricata</i>	Rough-leaved Daisy
299	<i>Olearia paucidentata</i>	Autumn Scrub Daisy
300	<i>Opercularia hispidula</i>	Hispid Stinkweed
301	<i>Opercularia volubilis</i>	Climbing Stinkweed
302	<i>Orianthera serpyllifolia</i>	
303	<i>Ornduffia parnassifolia</i>	
304	<i>Ornithopus compressus</i>	Yellow Serradella
305	<i>Orobanche minor</i>	Common Broomrape

FLORA SPECIES LIST KOORYUNDERUP – MOUNT HALLOWELL

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306	<i>Orthodontium lineare</i>	Cape Thread-moss
307	<i>Paracaleana disjuncta</i>	
308	<i>Paracaleana nigrita</i>	Flying Duck Orchid
309	<i>Paraserianthes lophantha</i>	Plume Albizia
310	<i>Paraserianthes lophantha</i>	Plume Albizia/False Wattle
311	<i>Patersonia occidentalis</i>	Purple Flag Iris
312	<i>Patersonia umbrosa</i> var. <i>umbrosa</i>	Purple flag
313	<i>Pelargonium australe</i>	Austral Stork's-bill/Wild Geranium
314	<i>Pelargonium drummondii</i>	Geraniums and storksbills
315	<i>Pelargonium littorale</i>	Native Geranium
316	<i>Pentapeltis silvatica</i>	Southern Pentapeltis
317	<i>Persoonia elliptica</i>	Spreading Snottygobble
318	<i>Persoonia longifolia</i>	Snottygobble
319	<i>Petrophile diversifolia</i>	Pixie Mops
320	<i>Petrorhagia dubia</i> *	Hairypink
321	<i>Pheladenia deformis</i>	
322	<i>Pigea debilissima</i>	Native Violet
323	<i>Pimelea clavata</i>	
324	<i>Pimelea hispida</i>	Bristly Pimelea
325	<i>Pimelea longiflora</i>	
326	<i>Pimelea rosea</i>	Rosy Rice Flower
327	<i>Pimelea spectabilis</i>	Bunjong
328	<i>Pithocarpa ramosa</i>	
329	<i>Platysace filiformis</i>	
330	<i>Platysace pendula</i>	
331	<i>Platytheca juniperina</i>	
332	<i>Pleurophascum occidentale</i> PRIORITY 4	Western Giant-leaved Moss
333	<i>Podocarpus drouynianus</i>	Emu Plum/Emu Berry
334	<i>Polygala myrtifolia</i> *	Butterfly Bush/Sweet Pea Shrub
335	<i>Poranthera huegeli</i>	
336	<i>Prasophyllum</i> aff. <i>parvifolium</i>	Autumn Leek Orchid
337	<i>Prasophyllum browni</i>	Christmas Leek Orchid
338	<i>Prasophyllum cucullatum</i>	Hooded Leek Orchid
339	<i>Prasophyllum elatum</i>	Tall Leek Orchid
340	<i>Prasophyllum fimbria</i>	Fringed Leek Orchid
341	<i>Prasophyllum regium</i>	King Leek Orchid
342	<i>Pteridium esculentum</i>	Bracken Fern
343	<i>Pterostylis</i> aff. <i>turfosa</i>	Bearded Bird Orchid
344	<i>Pterostylis barbata</i>	Bird Orchid
345	<i>Pterostylis glebosa</i>	Clubbed Snail Orchid
346	<i>Pterostylis pyramidalis</i>	Snail Orchid
347	<i>Pterostylis recurva</i>	Jug Orchid
348	<i>Pterostylis sanguinea</i>	Red-banded Greenhood
349	<i>Pterostylis turfosa</i>	Bearded Bird Orchid

FLORA SPECIES LIST KOORYUNDERUP – MOUNT HALLOWELL

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350	<i>Pterostylis vittata</i>	Banded Greenhood
351	<i>Ptychostomum capillare</i>	Capillary Thread-moss
352	<i>Pultenaea reticulata</i>	
353	<i>Pyrorchis nigricans</i>	Redbeaks
354	<i>Racopilum cuspidigerum</i>	
355	<i>Radula buccinifera</i>	
356	<i>Rhacocarpus purpurascens</i>	Royal Rock Moss
357	<i>Rhacopilum convolutaceum</i>	
358	<i>Rhapidorrhynchium amoenum</i>	
359	<i>Rhodanthe citrina</i>	
360	<i>Rhynchostegium tenuifolium</i>	Loose Straw Moss
361	<i>Riccardia aequicellularis</i>	
362	<i>Riccardia bipinnatifida</i>	
363	<i>Riccardia cochleata</i>	
364	<i>Riccardia watsiana</i>	
365	<i>Ricinocarpos glaucus</i>	Wedding Bush
366	<i>Rinzia schollerifolia</i>	Cranberry Rinzia
367	<i>Romulea rosea*</i>	Guildford Grass/Rosy sandcrocus
368	<i>Rosulabryum albolimbatum</i>	
369	<i>Rosulabryum billardieri</i>	
370	<i>Rosulabryum campylothecium</i>	
371	<i>Rosulabryum subtomentosum</i>	
372	<i>Rosulabryum torquescens</i>	
373	<i>Rytidosperma caespitosum</i>	Common Wallaby-grass
374	<i>Sauloma tenella</i>	Joint-toothed Mosses
375	<i>Scaevola microphylla</i>	Small-leaved Scaevola
376	<i>Scaevola striata</i>	Royal Robe
377	<i>Sematophyllum homomallum</i>	Bronze Moss
378	<i>Solanum laciniatum</i>	Kangaroo-apple
379	<i>Sphaerolobium alatum</i>	
380	<i>Sphaerolobium drummondi</i>	
381	<i>Sphaerolobium grandiflorum</i>	
382	<i>Sphaerolobium medium</i>	
383	<i>Sphaerolobium vimineum</i>	Leafless Globe-pea
384	<i>Sphenotoma capitata</i>	
385	<i>Sphenotoma gracilis</i>	Swamp Paper-heath
386	<i>Stackhousia monogyna</i>	Creamy Candles
387	<i>Stylidium adnatum</i>	Common Beaked Triggerplant
388	<i>Stylidium amoenum</i>	Lovely Triggerplant
389	<i>Stylidium assimile</i>	Bronze-leaved Triggerplant
390	<i>Stylidium calcaratum</i>	Book Triggerplant
391	<i>Stylidium crassifolium</i>	Thick-leaved Triggerplant
392	<i>Stylidium fasciculatum</i>	Pale Beaked Triggerplant
393	<i>Stylidium guttatum</i>	Dotted Triggerplant

FLORA SPECIES LIST KOORYUNDERUP – MOUNT HALLOWELL

Sourced from 2023 Citizen Science Bioblitz and iNaturalist (Denmark Environment Centre, 2023)

394	<i>Stylidium inundatum</i>	Hundreds and Thousands
395	<i>Stylidium junceum</i>	Little Reed Triggerplant
396	<i>Stylidium nymphaeum</i>	
397	<i>Stylidium piliferum</i>	Common Butterfly Triggerplant
398	<i>Stylidium planirosula</i>	
399	<i>Stylidium pritzelianum</i>	Royal Triggerplant
400	<i>Stylidium repens</i>	Matted Triggerplant
401	<i>Stylidium rhynchocarpum</i>	Black-beaked Triggerplant
402	<i>Stylidium scandens</i>	Climbing Triggerplant
403	<i>Stylidium schoenoides</i>	Cow Kicks
404	<i>Stylidium acuminatum</i> subsp. <i>meridionale</i>	
405	<i>Stylidium spathulatum</i>	Creamy Triggerplant
406	<i>Stylidium squamosotuberosum</i>	Rhizomatous Reed Triggerplant
407	<i>Stypandra glauca</i>	Blind Grass/Nodding Blue Lily
408	<i>Styphelia erubescens</i>	
409	<i>Styphelia madida</i>	
410	<i>Styphelia pallida</i>	Kick Bush
411	<i>Styphelia pendula</i>	
412	<i>Styphelia propinqua</i>	
413	<i>Styphelia racemulosa</i>	
414	<i>Symphyogyna podophylla</i>	
415	<i>Taxandria conspicua</i>	
416	<i>Taxandria juniperina</i>	Wattie/Warren River Cedar
417	<i>Taxandria linearifolia</i>	
418	<i>Taxandria marginata</i>	
419	<i>Taxandria parviceps</i>	Fine Teatree
420	<i>Tayloria octoblepharis</i>	
421	<i>Tayloria octoblepharum</i>	Austral Poop Moss
422	<i>Tetrarrhena laevis</i>	Forest Rice Grass
423	<i>Tetrateca affinis</i>	
424	<i>Tetrateca hispidissima</i>	
425	<i>Tetrateca setigera</i>	
426	<i>Thelymitra antennifera</i>	Vanilla Orchid/Lemon-scented Sun Orchid
427	<i>Thelymitra benthamiana</i>	Leopard Orchid/Blotched Sun-orchid
428	<i>Thelymitra crinita</i>	Blue Lady Orchid
429	<i>Thelymitra cucullata</i>	Swamp Sun Orchid
430	<i>Thelymitra flexuosa</i>	Twisted Sun Orchid
431	<i>Thelymitra fuscolutea</i>	Chestnut sun orchid
432	<i>Thelymitra graminea</i>	Shy Sun Orchid
433	<i>Thelymitra macrophylla</i>	Scented Sun Orchid
434	<i>Thelymitra paludosa</i>	Plain Sun Orchid
435	<i>Thelymitra</i> sp. <i>Denmark</i>	
436	<i>Thelymitra tigrina</i>	Tiger Orchid
437	<i>Thomasia heterophylla</i>	

FLORA SPECIES LIST KOORYUNDERUP – MOUNT HALLOWELL

Sourced from 2023 Citizen Science Bioblitz and iNaturalist (Denmark Environment Centre, 2023)

438	<i>Thomasia paniculata</i>	
439	<i>Thomasia purpurea</i>	
440	<i>Thomasia sp. Vasse</i>	Thomasias
441	<i>Thuidiopsis sparsa</i> (syn. <i>Thuidium sparsum</i>)	Sparse Fern Moss
442	<i>Thuidium sparsum</i> var. <i>hastatum</i>	Sparse Fern Moss
443	<i>Thysanotus multiflorus</i>	Many-flowered Fringe Lily
444	<i>Thysanotus patersoni</i>	Twining Fringe-lily
445	<i>Thysanotus tenellus</i>	
446	<i>Thysanotus thyrsoides</i>	
447	<i>Tortula antarctica</i>	
448	<i>Trachymene grandis</i>	
449	<i>Tremandra stelligera</i>	
450	<i>Tribonanthes australis</i>	Southern Tiurndin
451	<i>Tricoryne elatior</i>	Yellow rush-lily
452	<i>Tricoryne humilis</i>	
453	<i>Triquetrella papillata</i>	
454	<i>Trymalium ledifolium</i> var. <i>rosmarinifolium</i>	
455	<i>Trymalium odoatissimum</i>	Karri Hazel
456	<i>Trymalium venustum</i>	
457	<i>Utricularia menziesi</i>	Redcoats
458	<i>Utricularia multifida</i>	Pink Petticoats
459	<i>Weissia controversa</i>	
460	<i>Wurmbea dioica</i> subsp. <i>alba</i>	Early Nancy
461	<i>Xanthorrhoea gracilis</i>	Graceful Grass Tree/Mimidi
462	<i>Xanthorrhoea preissii</i>	Balga
463	<i>Xanthosia huegeli</i>	Heath Xanthosia
464	<i>Xanthosia rotundifolia</i>	Southern Cross Flower
465	<i>Xanthosia tasmanica</i>	
466	<i>Xyris lanata</i>	Yellow-eyed Grasses
467	<i>Zygodon species</i>	Yoke Mosses

APPENDIX 2

Definitions and Categories for Western Australian Conservation Categories

CONSERVATION CATEGORY DEFINITIONS

For Western Australian Fauna and Flora

Threatened, Extinct and Specially Protected fauna or flora¹ are species² which have been adequately searched for and are deemed to be, in the wild, threatened, extinct or in need of special protection, and have been gazetted as such.

Categories of Threatened, Extinct and Specially Protected fauna and flora are:

T Threatened species

Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).

Threatened fauna is the species of fauna that are listed as critically endangered, endangered or vulnerable threatened species.

Threatened flora is the species of flora that are listed as critically endangered, endangered or vulnerable threatened species.

The assessment of the conservation status of threatened species is in accordance with the BC Act listing criteria and the requirements of [Ministerial Guideline Number 1](#) and [Ministerial Guideline Number 2](#) that adopts the use of the International Union for Conservation of Nature (IUCN) [Red List of Threatened Species Categories and Criteria](#)³, and is based on the national distribution of the species.

CR **Critically endangered species**

Threatened species considered to be “*facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines*”.

Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines.

Examples of use:

- The western ringtail possum (*Pseudocheirus occidentalis*) is listed as a critically endangered threatened species under the *Biodiversity Conservation Act 2016*.
- Western ringtail possum is listed as critically endangered under the *Biodiversity Conservation Act 2016*.
- Listing reference in a table: column heading: BC Act, row text: CR.

EN **Endangered species**

Threatened species considered to be “*facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines*”.

Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines.

Examples of use:

- *Caladenia hopperiana* is listed as an endangered threatened species under the *Biodiversity Conservation Act 2016*.
- *Caladenia hopperiana* is listed as endangered under the *Biodiversity Conservation Act 2016*.
- Listing reference in a table: column heading: BC Act, row text: EN.

VU Vulnerable species

Threatened species considered to be “*facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines*”.

Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines.

Examples of use:

- The forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*) is listed as a vulnerable threatened species under the *Biodiversity Conservation Act 2016*.
- Forest red-tailed black cockatoo is listed as vulnerable under the *Biodiversity Conservation Act 2016*.
- Listing reference in a table: column heading: BC Act, row text: VU.

Extinct species

Listed by order of the Minister as extinct under section 23(1) of the BC Act as extinct or extinct in the wild.

EX Extinct species

Species where “*there is no reasonable doubt that the last member of the species has died*”, and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).

Examples of use:

- *Acacia kingiana* is listed as an extinct species under the *Biodiversity Conservation Act 2016*.
- *Acacia kingiana* is listed as extinct under the *Biodiversity Conservation Act 2016*.
- Listing reference in a table: column heading: BC Act, row text: EX.

EW Extinct in the wild species

Species that “*is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form*”, and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).

Currently there are no fauna or flora species listed as extinct in the wild.

SP Specially protected species

Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection.

Species that are listed as threatened species (critically endangered, endangered, or vulnerable) or extinct species under the BC Act cannot also be listed as specially protected species.

MI Migratory species

Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).

Migratory species include birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA)⁴, China (CAMBA)⁵ or The Republic of Korea (ROKAMBA)⁶, and fauna subject to the *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn Convention)⁷, an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.

Examples of use:

- The wedge-tailed shearwater (*Ardenna pacifica*) is listed as a specially protected migratory species under the *Biodiversity Conservation Act 2016*.
- Wedge-tailed shearwater is listed as migratory under the *Biodiversity Conservation Act 2016*.
- Listing reference in a table: column heading: BC Act, row text: MI.

CD Species of special conservation interest (conservation dependent)

Species of special conservation need that are dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).

Currently only fauna are listed as species of special conservation interest.

Examples of use:

- The wambenger, south-western brush-tailed phascogale (*Phascogale tapoatafa wambenger*) is listed as a specially protected species of special conservation interest under the *Biodiversity Conservation Act 2016*.
- Wambenger, south-western brush-tailed phascogale, is listed as conservation dependent under the *Biodiversity Conservation Act 2016*.
- Listing reference in a table: column heading: BC Act, row text: CD.

OS Species otherwise in need of special protection (other specially protected)

Species otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).

Currently only fauna are listed as species otherwise in need of special protection.

Examples of use:

- The dugong (*Dugong dugon*) is listed as a specially protected species otherwise in need of special protection under the *Biodiversity Conservation Act 2016*.
- Dugon is listed as other specially protected fauna under the *Biodiversity Conservation Act 2016*.
- Listing reference in a table: column heading: BC Act, row text: OS.

P Priority species

Priority is not a listing category under the BC Act. The Priority Flora and Fauna lists are maintained by the department and are published on the department's website.

All fauna and flora are protected in WA following the provisions in Part 10 of the BC Act. The protection applies even when a species is not listed as threatened or specially protected, and regardless of land tenure (State managed land (Crown land), private land, or Commonwealth land).

Species that may possibly be threatened species that do not meet the criteria for listing under the BC Act because of insufficient survey or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of prioritisation for survey and evaluation of conservation status so that consideration can be given to potential listing as threatened.

Species that are adequately known, meet criteria for near threatened, or are rare but not threatened, or that have been recently removed from the threatened species list or conservation dependent or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of priority status is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

1 Priority 1: Poorly-known species - known from few locations, none on conservation lands

Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, for example, agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation.

Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements for threatened listing and appear to be under immediate threat from known threatening processes. These species are in urgent need of further survey.

Examples of use:

- *Borya stenophylla* is listed as a Priority 1 species by the Department of Biodiversity, Conservation and Attractions.
- *Borya stenophylla* is listed as Priority 1 on the DBCA Priority Flora List.
- Listing reference in a table: column heading: DBCA, row text: P1.

2 Priority 2: Poorly-known species - known from few locations, some on conservation lands

Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, for example, national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation.

Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements for threatened listing and appear to be under threat from known threatening processes. These species are in urgent need of further survey.

Examples of use:

- *Caladenia nivalis* is listed as a Priority 2 species by the Department of Biodiversity, Conservation and Attractions.
- *Caladenia nivalis* is listed as Priority 2 on the DBCA Priority Flora List.
- Listing reference in a table: column heading: DBCA, row text: P2.

3 Priority 3: Poorly-known species - known from several locations

Species that are known from several locations and the species does not appear to be under imminent threat or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat.

Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. These species need further survey.

Examples of use:

- *Acacia nitidula* is listed as a Priority 3 species by the Department of Biodiversity, Conservation and Attractions.
- *Acacia nitidula* is listed as Priority 3 on the DBCA Priority Flora List.
- Listing reference in a table: column heading: DBCA, row text: P3.

4 Priority 4: Rare, Near Threatened and other species in need of monitoring

(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands.

(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as a conservation dependent specially protected species.

(c) Species that have been removed from the list of threatened species or lists of conservation dependent or other specially protected species, during the past five years for reasons other than taxonomy.

(d) Other species in need of monitoring.

Examples of use:

- *Banksia aculeata* is listed as a Priority 4 species by the Department of Biodiversity, Conservation and Attractions.
- *Banksia aculeata* is listed as Priority 4 on the DBCA Priority Flora List.
- Listing reference in a table: column heading: DBCA, row text: P4.

¹ The definition of flora includes algae, fungi, and lichens.

² Species includes all taxa (plural of taxon - a classificatory group of any taxonomic rank, e.g. a family, genus, species or any infraspecific category i.e. subspecies or variety, or a distinct population).

³ Western Australia has assigned species to threat categories using the *IUCN Red List of Threatened Species Categories and Criteria* since 1996 (referencing all criteria).

⁴ JAMBA - first included in the WA migratory species list in 1980.

⁵ CAMBA - first included in the WA migratory species list in 2010.

⁶ ROKAMBA - first included in the WA migratory species list in 2010.

⁷ Bonn Convention (Birds) - first included in the WA migratory species list in 2015.

APPENDIX 3

Fauna Species List

FAUNA SPECIES LIST KOORYUNDERUP – MOUNT HALLOWELL

Sourced from 2023 Citizen Science Bioblitz and iNaturalist (Denmark Environment Centre, 2023)

SPIDERS		
NO.	SCIENTIFIC NAME	COMMON NAME
1	<i>Aldabrinus species</i>	Pseudoscorpion
2	<i>Arachnura higginsi</i>	Scorpion-tailed Spider
3	<i>Araneus cyphoxis</i>	Western Bush Orbweaver
4	<i>Araneus senicaudatus</i>	Tailed Orbweaver
5	<i>Arkys walckenaeri</i>	Walckenaer's Studded Triangular Spider
6	<i>Austracantha minax</i>	Christmas Jewel Spider
7	Australomimetes (Genus)	Australasian Pirate Spiders
8	<i>Australomisidia pilula</i>	Lozenge-shaped Crab Spider
9	<i>Austrarchaea`sp.`</i>	Pelican Spiders
10	Bomis (Genus)	Crab Spiders
11	Cheiracanthium (Genus)	Longlegged Sac Spiders
12	<i>Chelifer cancroides</i>	House Pseudoscorpion
13	<i>Chenistonia`paludigena`</i>	Wishbone Spiders
14	<i>Chenistonia`sp. indet.`</i>	Wishbone Spiders
15	Clubionidae (Family)	Sac Spiders
16	Euophryini (Tribe)	Typical Jumping Spiders
17	Habronestes (Genus)	Zodariid Spiders
18	<i>Leucauge dromedaria</i>	Silver Orb Spider
19	Linyphiidae (Family)	Sheetweb and Dwarf Weavers
20	Lycosidae (Family)	Wolf Spiders
21	<i>Maratus pavonis</i>	Common Peacock Spider
22	<i>Megalopsalis minima</i>	Megalopsalis minima-species group
23	Neosparassus (Genus)	Badge Huntsman Spiders
24	<i>Nicodamus peregrinus</i>	Red-and-black Spider
25	Opisthoncus (Genus)	Garden Jumping Spiders
26	Salticinae (Family)	Typical Jumping Spiders
27	Sidymella (Genus)	Square-ended Crab Spiders
28	<i>Socca pustulosa</i>	Knobbed Orbweaver
29	<i>Storosa tetrica</i>	Zodariid Spiders
30	Theridiidae (Family)	Cobweb Spiders
31	Trachycosmus (Genus)	Scorpion Flat Spiders
32	Triaenonychidae (Family)	Triaenonychid Harvestmen
33	Trombidia (Infraorder)	Velvet Mites, Chiggers, and Relatives
34	<i>Zephyrarchaea mainae</i> VULNERABLE	Main's Assassin Spider
35	<i>Zygomis xanthogaster</i>	Milky Flower Spider

INSECTS		
NO.	SCIENTIFIC NAME	COMMON NAME
1	Acanthomimini (Tribe)	Stick Insects
2	Acanthosomatidae (Family)	Shield Bugs
3	<i>Acrida conica</i>	Giant Green Slantface

FAUNA SPECIES LIST KOORYUNDERUP – MOUNT HALLOWELL

Sourced from 2023 Citizen Science Bioblitz and iNaturalist (Denmark Environment Centre, 2023)

INSECTS		
NO.	SCIENTIFIC NAME	COMMON NAME
5	<i>Adversaeschna brevistyla</i>	Blue-spotted Hawker
6	Amblyopone (Genus)	Vampire Ants
7	<i>Anax papuensis</i>	Australian Emperor
8	<i>Anophelepis telesphorus</i>	Short-winged Stick Insect
10	Aphidinae (Subfamily)	Aphids
11	Apioninae (Subfamily)	Pear-shaped Weevils
12	<i>Archaeosynthemis leachi</i>	Twinspot Tigertail
13	<i>Archaeosynthemis occidentalis</i>	Western Brown Tigertail
14	<i>Archimantis sobrina</i>	Mallee Grass Mantis
15	Assilinae (Subfamily)	Robber Flies
16	<i>Austroaeschna anacantha</i>	Western Darner
17	Bethylinae (Subfamily)	Flat Wasps
18	<i>Bibio imitator</i>	March Flies
19	Callibracon (Genus)	Braconid Wasps
20	Calyptratae	Calyptrate Flies
21	<i>Catasarcus impressipennis</i>	Broad-nosed Weevils
22	Cecidomyiidae (Family)	Gall and Forest Midges
23	Cerambycidae (Family)	Longhorn Beetles
24	Chironomus (Genus)	Non-biting Midges
25	<i>Choerocoris variegatus</i>	Variable Shield Bug
26	Cicadellidae (Family)	Typical Leafhoppers
27	<i>Circopetes obtusata</i>	Broken Leaf Moth
29	Coccidae (Family)	Soft scales
30	Coccoidea (Superfamily)	Scale Insects
31	Cochylimorpha (Genus)	Tortricine Leafroller Moths
32	Complex <i>Chrysopasta elegans</i>	Bristle Flies
34	Corticariinae (Subfamily)	Minute Brown Scavenger Beetles
35	<i>Coryphistes ruricola</i>	Bark-mimicking Grasshopper
36	<i>Cryptocheilus bicolor</i>	Two-colored Orange Spider Wasp
37	Cryptodus (Genus)	Rhinoceros Beetles
39	Diphucephala (Genus)	June Beetles
40	<i>Ecnolagria aeneoviolacea</i>	Long-jointed Beetles
41	<i>Ectropis excursaria</i>	Twig Looper
43	<i>Endoxyla lituratus</i>	Leopard Moths
45	Eriopterini (Tribe)	Limoniid Crane Flies
46	<i>Euchaetis metallota</i>	Concealer Moths
47	Exoneura (Genus)	Allodapine Bees
48	<i>Gastrimargus musicus</i>	Australian Yellow-winged Locust
49	<i>Geitoneura klugi</i>	Klug's Xenica
51	Geron (Genus)	Bee Flies
52	Gryllotalpa (Genus)	Mole Crickets
53	<i>Hemicordulia tau</i>	Tau Emerald

FAUNA SPECIES LIST KOORYUNDERUP – MOUNT HALLOWELL

Sourced from 2023 Citizen Science Bioblitz and iNaturalist (Denmark Environment Centre, 2023)

INSECTS		
NO.	SCIENTIFIC NAME	COMMON NAME
54	<i>Hemisaga denticulata</i>	Common Sluggish Katydid
55	Heteromastix (Genus)	Soldier Beetles
56	<i>Heteronympha merope duboulayi</i>	Western Brown
57	Heteropsilopus (Genus)	Long-legged Flies
58	Iridomyrmex (Genus)	Rainbow, Tyrant, and Meat Ants
59	<i>Iridomyrmex conifer</i>	Rainbow Ants
60	<i>Lamprima aurata</i>	Golden Stag Beetle
61	Lasioglossum (Genus)	Sweat and Furrow Bees
63	<i>Laxta rieki</i>	Giant Cockroaches
64	<i>Leptotarsus costalis</i>	Common Brown Crane Fly
66	Membracidae (Family)	Typical Treehoppers
67	<i>Micromus tasmaniae</i>	Tasmanian Brown Lacewing
68	Monophlebulus (Genus)	Giant Scale Insects
69	<i>Mygalopsis pauperculus</i>	Coneheads
70	<i>Myrmecia imai</i>	Bull and Dinosaur Ants

OTHER INVERTEBRATES		
NO.	SCIENTIFIC NAME	COMMON NAME
1	Armadillidae (Family)	Tropical Pill Woodlice
2	Atelomastix (Genus)	Forest Millipedes
3	<i>Atelomastix ellenae</i>	Millipede
4	Cormocephalus (Genus)	Common Centipedes
6	<i>Cynotelopus notabilis</i> ENDANGERED	WA Pill Millipede
7	Entomobryidae (Family)	Slender Springtails
8	<i>Fletchamia sugdeni</i>	Canary Worm
9	Geophilomorpha (Order)	Soil Centipedes
10	<i>Hesperisiphon diversus</i>	Millipede
11	<i>Megalosiphon flavomarginatus</i>	Millipede
12	Siphonotidae (Family)	Camphor Millipedes

FROGS		
NO.	SCIENTIFIC NAME	COMMON NAME
1	<i>Ranoidea moorei</i>	Motorbike Frog
2	<i>Metacrinia nichollsi</i>	Nichollas Toadlet
3	<i>Crinia georgiana</i>	Quacking Frog
4	<i>Litoria adelaidensis</i>	Slender Tree Frog
5	Heleioporus (Genus)	Foam-nesting Ground Frogs

FAUNA SPECIES LIST KOORYUNDERUP – MOUNT HALLOWELL

Sourced from 2023 Citizen Science Bioblitz and iNaturalist (Denmark Environment Centre, 2023)

REPTILES			
NO.	COMMON NAME	SCIENTIFIC NAME	FAMILY
1	Black Tiger Snake	<i>Notechis ater occidentalis</i>	Elapidae
2	Bobtail	<i>Tiliqua rugosa</i>	Scincidae
3	Burrowing Skink	<i>Hemiegis peroni peroni</i>	Scincidae
4	Common South-west Ctenotus	<i>Ctenotus labillardieri</i>	Scincidae
5	Crowned Snake	<i>Drysdalia coronata</i>	Elapidae
6	Dugite	<i>Pseudonaja affinis affinis</i>	Elapidae
7	Karda	<i>Varanus rosenbergi</i>	Scincidae
8	King's Skink	<i>Egernia kingi</i>	Scincidae
9	Marbled Gecko	<i>Phyllodactylus marmoratus</i>	Gekkonidae
10	New Holland Skink	<i>Leiopisma trilineatum</i>	Scincidae
11	Smith's Skink	<i>Egernia napoleonis</i>	Scincidae
12	Square-nosed Snake	<i>Rhinoplocephalus bicolor</i>	Elapidae

BIRDS		
NO.	COMMON NAME	SCIENTIFIC NAME
1	Australian Hobby	<i>Falco longipennis</i>
2	Australian Kestrel	<i>Falco cenchroides</i>
3	Australian Magpie	<i>Gymnorhina tibicen</i>
4	Australian Magpie-lark	<i>Grallina cyanoleuca</i>
5	Australian Raven	<i>Corvus coronoides</i>
6	Australian Ringneck	<i>Barnardius zonarius</i>
7	Australian Shelduck	<i>Tadorna tadornoides</i>
8	Baudin's Cockatoo ENDANGERED	<i>Zanda baudini</i>
9	Black-faced Cuckoo-shrike	<i>Coracina novaehollandiae</i>
10	Brown Falcon	<i>Falco berigora</i>
11	Brown Goshawk	<i>Accipiter fasciatus</i>
12	Brown Honeyeater	<i>Lichmera indistincta</i>
13	Brush Bronzewing	<i>Phaps elegans</i>
14	Carnaby's Cockatoo ENDANGERED	<i>Zanda latirostris</i>
15	Collared Sparrowhawk	<i>Accipiter cirrocephalus</i>
16	Common Bronzewing	<i>Phaps chalcoptera</i>
17	Crested Shrike-tit	<i>Falcunculus frontatus</i>
18	Dusky Woodswallow	<i>Artamus cyanopterus</i>
19	Elegant Parrot	<i>Neophema elegans</i>
20	Fan-tailed Cuckoo	<i>Cacomantis flabelliformis</i>
21	Forest Red-tailed Black-cockatoo VULNERABLE	<i>Calyptorhynchus banksii naso</i>
22	Galah*	<i>Eolophus roseicapilla</i>
23	Gilbert's Honeyeater	<i>Melithreptus chloropsis</i>
24	Grey Butcherbird	<i>Cracticus torquatus</i>
25	Grey Currawong	<i>Strepera versicolor</i>

FAUNA SPECIES LIST KOORYUNDERUP – MOUNT HALLOWELL

Sourced from 2023 Citizen Science Bioblitz and iNaturalist (Denmark Environment Centre, 2023)

BIRDS		
NO.	COMMON NAME	SCIENTIFIC NAME
26	Grey Fantail	<i>Rhipidura albiscapa</i>
27	Grey Shrike-thrush	<i>Colluricincla harmonica</i>
28	Grey Teal	<i>Anas gibberifrons</i>
29	Horsfield's Bronze-Cuckoo	<i>Chrysococcyx basalis</i>
30	Inland Thornbill	<i>Acanthiza apicalis</i>
31	Laughing Kookaburra*	<i>Dacelo novaeguineae</i>
32	Little Eagle	<i>Hieraaetus morphnoides</i>
33	Little Wattlebird	<i>Anthochaera chrysoptera</i>
34	Maned Duck	<i>Chenonetta jubata</i>
35	Marsh Harrier	<i>Circus aeruginosus</i>
36	Nankeen Kestrel	<i>Falco cenchroides</i>
37	New Holland Honeyeater	<i>Phylidonyris novaehollandiae</i>
38	Osprey	<i>Pandion haliaetus</i>
39	Pacific Black Duck	<i>Anas superciliosa</i>
40	Painted Button-quail	<i>Turnix varia</i>
41	Pallid Cuckoo	<i>Cacomantis pallidus</i>
42	Port Lincoln Ringneck	<i>Barnardius zonarius</i>
43	Purple-crowned Lorikeet	<i>Parvipsitta porphyrocephala</i>
44	Rainbow Bee-eater	<i>Merops ornatus</i>
45	Red Wattlebird	<i>Anthochaera carunculata</i>
46	Red-capped Parrot	<i>Purpureicephalus spurius</i>
47	Red-eared Firetail	<i>Stagonopleura oculata</i>
48	Red-winged Fairy-wren	<i>Malurus elegans</i>
49	Restless Flycatcher	<i>Myiagra inquieta</i>
50	Rufous Treecreeper	<i>Climacteris rufa</i>
51	Sacred Kingfisher	<i>Todiramphus sanctus</i>
52	Scarlet Robin	<i>Petroica multicolor</i>
53	Shining Bronze-Cuckoo	<i>Chrysococcyx lucidus</i>
54	Silvereye	<i>Zosterops lateralis</i>
55	Southern Boobook	<i>Ninox boobook</i>
56	South-western Spotted Scrubwren	<i>Sericornis maculatus maculatus</i>
57	Splendid Fairywren	<i>Malurus splendens</i>
58	Spotted Pardalote	<i>Pardalotus punctatus</i>
59	Square-tailed Kite	<i>Lophoictinia isura</i>
60	Striated Pardalote	<i>Pardalotus striatus</i>
61	Tawny Frogmouth	<i>Podargus strigoides</i>
62	Tawny-crowned Honeyeater	<i>Gliciphila melanops</i>
63	Tree Martin	<i>Petrochelidon nigricans</i>
64	Twenty-eight Parrot	<i>Barnardius zonarius semitorquatus</i>
65	Varied Sittella	<i>Daphoenositta chrysoptera</i>
66	Wedge-tailed Eagle	<i>Aquila audax</i>

FAUNA SPECIES LIST KOORYUNDERUP – MOUNT HALLOWELL

Sourced from 2023 Citizen Science Bioblitz and iNaturalist (Denmark Environment Centre, 2023)

BIRDS		
NO.	COMMON NAME	SCIENTIFIC NAME
67	Welcome Swallow	<i>Hirunco neoxena</i>
68	Western Gerygone	<i>Gerygone fusca</i>
69	Western Rosella	<i>Platycercus icterotis</i>
70	Western Shrike-tit	<i>Falcunculus leucogaster</i>
71	Western Spinebill	<i>Acanthorhynchus superciliosus</i>
72	Western Thornbill	<i>Acanthiza inornata</i>
73	Western Whistler	<i>Pachycephala fuliginosa</i>
74	Western Yellow Robin	<i>Eopsaltria griseogularis</i>
75	Whistling Kite	<i>Haliastur sphenurus</i>
76	White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>
77	White-breasted Robin	<i>Eopsaltria georgiana</i>
78	White-browed Babbler	<i>Pomatostomus superciliosus</i>
79	White-browed Scrubwren	<i>Sericornis frontalis</i>
80	White-faced Heron	<i>Ardea novaehollandiae</i>
81	Willie Wagtail	<i>Rhipidura leucophrys</i>
82	Yellow-rumped Thornbill	<i>Acanthiza chrysorrhoa</i>
*Introduced (non-native) species		

MAMMALS			
NO.	COMMON NAME	SCIENTIFIC NAME	FAMILY
1	Australian Bush Rat	<i>Rattus fuscipes</i>	Muridae
2	Black Rat*	<i>Rattus rattus</i>	Muridae
3	Cat*	<i>Feline catus</i>	Felidae
4	Common Brushtail Possum	<i>Trichosurus vulpecula</i>	Phalangeridae
5	Dog*	<i>Canine familiaris</i>	Canidae
6	House Mouse*	<i>Mus musculus</i>	Muridae
7	Rat	<i>Rattus species</i>	Muridae
8	Red Fox*	<i>Vulpes vulpes</i>	Canidae
9	South-western Brown Bandicoot PRIORITY 4	<i>Isodon fusciventer</i>	Perameledae
10	South-western Brush-tailed Phascogale CONSERVATION DEPENDENT	<i>Phascogale tapoatafa wambenger</i>	Dasyuridae
11	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	Macropodidae
12	Yellow-footed Antechinus	<i>Antechinus flavipes</i>	Dasyuridae
13	White-striped Free-tailed Bat	<i>Austronomus australis</i>	Molossidae
14	Gould's Wattled Bat	<i>Chalinolobus gouldii</i>	Vespertilionidae
15	Chocolate Wattled Bat	<i>Chalinolobus morio</i>	Vespertilionidae
16	Western False Pipistrelle PRIORITY 4	<i>Falsistrellus mackenziei</i>	Vespertilionidae
17	Lesser Long-eared Bat	<i>Nyctophilus geoffroyi</i>	Vespertilionidae
18	Southern Forest Bat	<i>Vespadelus regulus</i>	Vespertilionidae
*Introduced (non-native) species			

APPENDIX 4

Fungi Species List

FUNGI SPECIES LIST - KOORYUNDERUP – MOUNT HALLOWELL

Source: Sourced from 2023 Citizen Science Bioblitz and iNaturalist (Denmark Environment Centre, 2023)
Denmark Environment Centre Mt Hallowell Reserve Survey & Research Project 2004, updated July 2008 by Katrina Syme.

Background

The majority of plant species in the Mount Hallowell Reserve are known, with around 300 species listed (R. Gretton, pers. comm. 2004), but accurate numbers of fungi cannot be given, because despite being one of the most diverse groups of organisms, this Kingdom has never been adequately surveyed. Around 80% of the State's vascular plants have been named, in contrast to half the estimated 10,000 species of macrofungi and 2% of fungi overall (Syme, 2008). It is currently estimated that there are seven times more fungi (including microfungi) than vascular plants.

Fungi play a vital role in the environment, as decomposers and recyclers of organic matter (including large fallen trees) and as partners in mycorrhizal relationships with 90% of plants, including native orchids. Many native animals and invertebrates rely on fungi – especially an enormous variety of truffle-like species - as food.

Methodology

It has been possible to compile a species list from lists assembled through volunteer efforts such as:

- Opportunistic collecting resulting in vouchered collections held in the Western Australian Herbarium.
- Lists made during field trips held as part of the 2001 Inaugural National Fungimap Conference.
- Lists made during field trips held as part of the 2003 International Fungi and Fibre Symposium.
- Observations in the field.
- Lists and collections of fungi from similar vegetation types in the Denmark Shire.

In 2006, data was collected on a one-day foray as part of the *Survey of Fungi of the South Coast Natural Resource Management Region*. This was produced as part of the Department of Environment and Conservation's Biodiversity Inventory Program, funded through South Coast Natural Resource Management Inc., the regional group for NRM on the South Coast of Western Australia, funded by the Australian and Western Australian Governments through the joint National Action Plan for Salinity and Water Quality Program and the Natural Heritage Trust. (Ref.: *Biodiversity Inventory; Survey of fungi in the South Coast Natural Resource Management Region 2006-2007* Katrina Syme, 2008)

All the data was combined and sorted and a list of named and un-named distinguishable species extracted. With the data collected in 2006, some fungi could not be identified to genera, while others required microscopy to aid identification, therefore these species were excluded.

FUNGI		
NO.	SCIENTIFIC NAME	COMMON NAME
1	<i>Abortiporus biennis</i>	Blushing Rosette
2	<i>Aecidium eburneum</i>	
3	<i>Agaricus aff. xanthodermus</i>	
4	<i>Agaricus bitorquis</i>	
5	<i>Agaricus sp. 'small with red-brown fibrils' sp. 240</i>	
6	<i>Agaricus species</i>	Field and Button Mushrooms
7	<i>Aleuria aurantia</i>	
8	<i>Aleuria rhenana</i>	
9	<i>Aleurina ferruginea</i>	
10	<i>Amanita aff. preissii</i>	
11	<i>Amanita ananiceps</i>	Australian Pineapple Lepidella
12	<i>Amanita basiorubra</i>	
13	<i>Amanita brunneibulbosa</i>	
14	<i>Amanita brunneistriatula</i>	
15	<i>Amanita eucaalypti</i>	
16	<i>Amanita flaviphylla</i>	

FUNGI SPECIES LIST - KOORYUNDERUP – MOUNT HALLOWELL

FUNGI		
NO.	SCIENTIFIC NAME	COMMON NAME
17	<i>Amanita luteivolvata</i>	
18	<i>Amanita ochrophyloides</i>	
19	<i>Amanita punctata</i> sp.405	
20	<i>Amanita</i> sp. 'salmon-pink margin' sp. 588	
21	<i>Amanita umbrinella</i>	
22	<i>Amanita walpolei</i>	
23	<i>Amanita xanthocephala</i>	Vermilion Amanita
24	<i>Anthracobia muelleri</i>	
25	<i>Anthracophyllum archeri</i>	Orange Fan
26	<i>Arcangiella daucina</i>	Milkcaps, Brittlegills and Allies
27	<i>Armillaria luteobubalina</i>	Australian Honey Fungus
28	<i>Ascocoryne sarcoides</i>	
29	<i>Austroboletus lacunosus</i>	
30	<i>Austroboletus occidentalis</i>	Boletes
31	<i>Austrocortinarius australiensis</i>	Common Gilled Mushrooms and Allies
32	<i>Austrogautieria manjimupana</i>	
33	<i>Austropaxillus infundibuliformis</i>	Boletes and Allies
34	<i>Austropaxillus</i> sp. 'pale yellow' sp. 179	
35	<i>Bankeraceae</i>	Mushrooms, Bracket Fungi, Puffballs
36	<i>Beauveria bassiana</i> sp. 436	
37	<i>Bolbitius vitellinus</i>	
38	<i>Boletellus ananiceps</i>	
39	<i>Boletellus obscurecoccineus</i>	Rhubarb Bolete
40	<i>Boletellus</i> sp. 'brown & maroon'	
41	<i>Boletus</i> sp. 'peach' sp.253	
42	<i>Boletus species</i>	Porcini and Allies
43	<i>Calocera guepinioides</i>	Higher Basidiomycetes
44	<i>Calostoma fuhreri</i>	
45	<i>Calostoma fuscum</i>	
46	<i>Camarophyllopsis</i> sp. 'yellow naphthalene' sp. 557	
47	<i>Cantharellus concinnus</i>	Australian Chanterelle
48	<i>Castoreum radicum</i>	
49	<i>Chlorociboria aerugenascens</i>	
50	<i>Cladia species</i>	Cladias
51	<i>Cladonia rigida</i>	Spindles and Structured Lichens
52	<i>Clavaria alboglobospora</i>	
53	<i>Clavicornia piperata</i>	
54	<i>Clavulina amethystina</i>	
55	<i>Clavulina</i> sp. 'yellow tiny' sp. 1566K	
56	<i>Clavulinopsis</i> aff. <i>aurantia</i>	

FUNGI SPECIES LIST - KOORYUNDERUP – MOUNT HALLOWELL

FUNGI		
NO.	SCIENTIFIC NAME	COMMON NAME
57	<i>Clavulinopsis amoena</i>	Antler and Spindle Fungi
58	<i>Clavulinopsis miniata</i>	
59	<i>Clavulinopsis sulcata</i>	Flame Fungus
60	<i>Clitocybe semiocculta</i>	
61	<i>Coltricia cinnamomea</i>	
62	<i>Coltricia species</i>	Mushrooms, Bracket Fungi, Puffballs
63	<i>Coltriciella dependens</i>	
64	<i>Colus pusillus</i>	
65	<i>Coprinellus disseminatus</i>	Trooping Crumble Cap
66	<i>Coprinellus micaceus</i>	
67	<i>Coprinus comatus</i>	Shaggy Mane
68	<i>Cordyceps militaris</i>	
69	<i>Cortinarius abnormis</i>	
70	<i>Cortinarius alboviolaceus</i>	
71	<i>Cortinarius archeri</i>	
72	<i>Cortinarius australiensis</i>	
73	<i>Cortinarius austroviolaceus</i>	
74	<i>Cortinarius basipurpureus</i>	
75	<i>Cortinarius basirubescens</i>	
76	<i>Cortinarius fibrillosus</i>	
77	<i>Cortinarius lavendulensis</i>	
78	<i>Cortinarius luteirufescens</i>	
79	<i>Cortinarius microarcheri</i>	
80	<i>Cortinarius ochraceus</i>	
81	<i>Cortinarius phalarus</i>	
82	<i>Cortinarius radicans</i>	
83	<i>Cortinarius rotundisporus</i>	Elegant Blue Webcap
84	<i>Cortinarius sinapicolor</i>	Common Gilled Mushrooms and Allies
85	<i>Cortinarius sp. 'orange brown viscid cap' sp. 146</i>	
86	<i>Cortinarius sp. 'pointy cap' sp. 98</i>	
87	<i>Cortinarius sp. 'small purple umbonate' sp. 609</i>	
88	<i>Cortinarius sp. 'vinaceous lilac' sp. 171b</i>	
89	<i>Cortinarius sp. 'yellow with orange brown fibrils' sp. 237</i>	
90	<i>Cortinarius symeae</i>	
91	<i>Crepidotus variabilis</i>	Variable Oysterling
92	<i>Cuphophyllus aurantiopallens</i>	Waxcaps and Allies
93	<i>Favolaschia claudopus*</i>	Orange Pore Fungus
94	<i>Fistulinella mollis</i>	Marshmallow Bolete
95	<i>Fistulinella prunicolor</i>	Boletes
96	<i>Fuscoporia gilva</i>	Mustard Yellow Polypore

FUNGI SPECIES LIST - KOORYUNDERUP – MOUNT HALLOWELL

FUNGI		
NO.	SCIENTIFIC NAME	COMMON NAME
97	<i>Galerina</i>	Moss Bells
98	<i>Graphidaceae</i>	Script Lichens and Allies
99	<i>Gymnopilus allantopus</i>	Common Gilled Mushrooms and Allies
100	<i>Gymnopilus eucalyptorum</i>	Common Gilled Mushrooms and Allies
101	<i>Gymnopilus junonius</i>	Spectacular Rustgill
102	<i>Gymnopilus purpuratus</i>	Common Gilled Mushrooms and Allies
103	<i>Helotiales</i>	Higher Ascomycetes
104	<i>Hemimycena species</i>	Half Bonnets
105	<i>Hydnoplicata convoluta</i>	Pezizas, Desert Truffles, and Allies
106	<i>Hydnum species</i>	Hedgehog Mushrooms
107	<i>Hygrocybe species</i>	Waxcaps
108	<i>Hygrophoropsis aurantiaca</i>	False Chanterelle
109	<i>Hypholoma fasciculare</i>	Sulphur Tuft
110	<i>Hypomyces chrysospermus</i>	Bolete Mould
111	<i>Laccaria species</i>	Laccarias
112	<i>Lactarius eucalypti</i>	Milkcaps, Brittlegills and Allies
113	<i>Lecidella species</i>	Disc Lichens
114	<i>Lepiota species</i>	Common Gilled Mushrooms and Allies
115	<i>Leucopaxillus lilacinus</i>	Common Gilled Mushrooms and Allies
116	<i>Lichenomphalia chromacea</i>	Yellow Navel
117	<i>Lobaria species</i>	Lung Lichens
118	<i>Melanelia species</i>	Camouflage Lichens
119	<i>Mucronella pendula</i>	Icicle Spine
120	<i>Mycena species</i>	Bonnets
121	<i>Ochrolechia species</i>	Crabseye Lichens
122	<i>Omphalotus nidiformis</i>	Ghost Fungus
123	<i>Peltigera dolichorhiza</i>	Longroot Pelt Lichen
124	<i>Peltigera polydactylon</i>	Many-fruited Pelt Lichen
125	<i>Piptoporus australiensis</i>	Curry Punk
126	<i>Pisolithus arhizus</i>	Dyeball
127	<i>Pluteus species</i>	Deer Mushrooms
128	<i>Podoserpula pusio</i>	Pagoda Fungus
129	<i>Pseudocyphellaria neglecta</i>	Common Gilled Mushrooms and Allies
130	<i>Ramaria capitata</i>	Mushrooms, Bracket Fungi, Puffballs,
131	<i>Rhodofomitopsis lilacinogilva</i>	Gum Bracket
132	<i>Rickenella fibula</i>	Orange Moss Navel
133	<i>Russula adusta</i>	Blackening Russula
134	<i>Russula clelandii</i>	Milkcaps, Brittlegills and Allies
135	<i>Russula persanguinea</i>	Milkcaps, Brittlegills and Allies
136	<i>Russula purpureoflava</i>	Milkcaps, Brittlegills and Allies

FUNGI SPECIES LIST - KOORYUNDERUP – MOUNT HALLOWELL

FUNGI		
NO.	SCIENTIFIC NAME	COMMON NAME
137	<i>Scleroderma</i>	Earthballs
138	<i>Stereum hirsutum</i>	Hairy Curtain Crust
139	<i>Trametes coccinea</i>	Southern Cinnabar Polypore
140	<i>Trametes versicolor</i>	Turkey-tail
141	<i>Tubaria rufofulva</i>	Burgundy Wood Tubaria
142	<i>Usnea species</i>	Beard Lichens
143	<i>Xylaria hypoxylon</i>	Candlesnuff Fungus

APPENDIX 5

Dieback Mapping

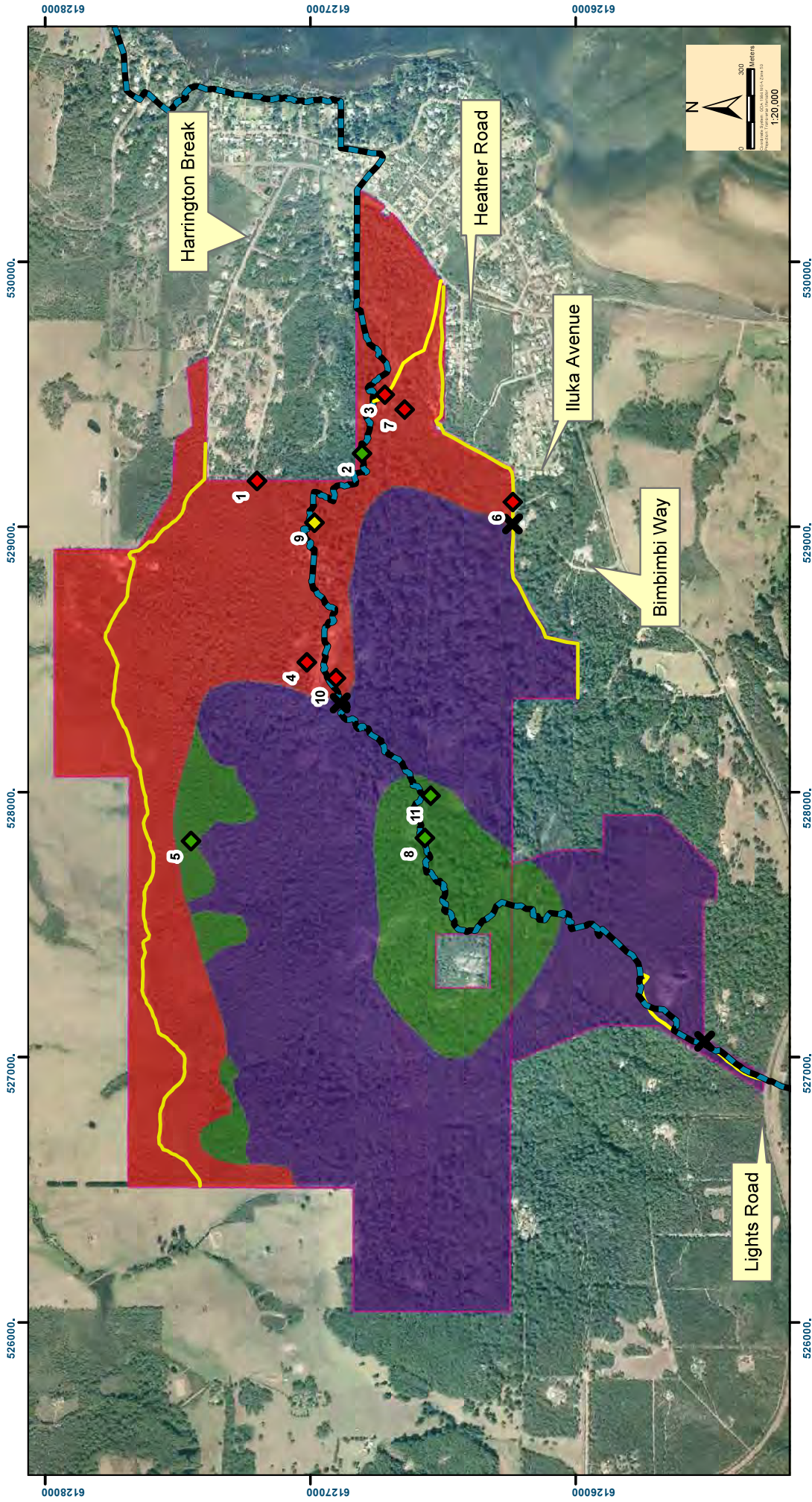


Figure 1: Phytophthora dieback disease distribution showing sample and cleansdown locations



Great Southern Bio Logic does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted.

Ref: GSBL133

Date: 26/06/2014

Image supplied by Shire of Denmark



- Legend**
- Infested
 - Uninfested
 - Uninterpretable
 - Mt-Hallowell Reserve
 - Access tracks
 - Bibbulmun Track (Sheila Hill Memorial Trail)
- Sample Locations**
- ◆ Negative
 - ◆ Positive
 - ◆ Unresolved at 16 June 2014
 - ✕ Cleansdown locations

Broadscale survey of *Phytophthora Dieback*
 Distribution across the Mount Hallowell Reserve,
 Denmark and Reserve Hygiene Management Plan

APPENDIX 6

Community Survey

A survey was released by the Shire of Denmark on Wednesday 20 November 2024 and closed on Friday 17 January 2025.

Questions in the survey focused on feedback regarding management of Kooryunderup – Mount Hallowell and are summarised below.

SURVEY QUESTIONS

SURVEY DATA
1) Full Name
2) Age
17 years or younger
18 - 29 years
30 - 49 years
50 - 64 years
65+ years
3) Gender
Female
Male
Prefer Not To Say
Other
4) Place of Residence
Denmark
Hay
Ocean Beach
Scotsdale/Shadforth
Parryville/Kordabup
Peaceful Bay/Bow Bridge/Hazelvale/Kentdale/Nornalup
William Bay
Do not live in the Shire of Denmark
5) What is your primary connection to the Shire of Denmark?
I live in the Shire of Denmark
I have a commercial interest in the Shire of Denmark
I am a visitor to the Shire of Denmark
Other (please specify)
6) Tell us more about you. Are you a.....?(Please select all that are applicable to you.)
Denmark community member
Bibbulmun Track Foundation member
Bibbulmun Track Maintenance volunteer (Mt Hallowell section)
Denmark Bird Group member
South Coast Bushcare Services member or volunteer
Denmark Dog Owners Group member
Green Skills Denmark employee or volunteer
Friends of Mount Hallowell Kooryunderup member
Denmark Environment Centre employee, member or volunteer

Denmark Equestrian Club member
Denmark Mountain Biking Club member
Denmark Running Club member
Denmark Dog Owners Group member
Denmark Mountain Biking Club member
Denmark Bird Group member
Department of Biodiversity Conservation and Attractions representative
Kwoorabup Barefoot Walking Group member
Department of Planning, Lands and Heritage Indigenous Heritage South Coast Region representative
Bibbulmun Track Foundation member or volunteer
Bibbulmun Track Maintenance Volunteer (Mt Hallowell section)
Denmark Running Club member
Denmark Environment Centre employee or volunteer
Green Skills Denmark employee or volunteer
Denmark Equestrian Management Group representative or member
Department of Biodiversity, Conservation and Attractions representative
Department of Water and Environmental Regulation representative
Department of Water and Environmental Regulation SC Region representative
Department of Planning, Lands and Heritage Indigenous Heritage South Coast Region representative
Friend of Kooryunderup / Mount Hallowell member
Option 20
Denmark Equestrian Management Group member
Kwoorabup Barefoot Walking Group member
Private property with a shared boundary with the Mt Hallowell Reserve
Option 22
Ocean Beach Bushfire Brigade member
Ocean Beach resident or ratepayer
Private property owner with a shared boundary with the Mt Hallowell reserve
South Coast Bushcare Services member or volunteer
Water Corporation SC Region representative
None of the above
7) How often do you visit Mount Hallowell Reserve?
Daily
Weekly
Fortnightly
Monthly
Seasonally
Rarely
Never
8) How do you get to the Reserve?
Drive
Walk
Cycle
Other (please specify)

9) How do you get to the Reserve? (Select all applicable)
Drive
Walk
Cycle
Other (please specify)
10) Which are your favourite areas to visit in the Reserve?(Select all applicable))
Monkey Rock
Shiela Hill Memorial Trail
Mount Hallowell summit
Bibbulmun Track
Ocean Beach Bushfire Brigade
Other (please specify)
11) What activities do you undertake while visiting the Reserve?(Select all applicable)
Hiking
Dog walking
Mountain bike riding
Bird watching
Picnicking
Enjoying nature
Guided tours (tourism)
Educational activities
Citizen science
Organised maintenance activities (i.e. weed control, Bibbulmun Track Foundation activities etc)
Other (please specify)
12) What is special to you about Mount Hallowell Reserve? (Select all applicable)
The biodiversity values of the Reserve
The ability for me to enjoy being in nature
The hiking trails
Having a lovely place to walk my dog
Mountain biking on the trails
The cultural heritage of the Reserve (including the Indigenous heritage)
Easy access to nature
The natural beauty of the Reserve in the landscape
Scientific value
Other (please specify)
13) Please rate the following values by level of importance to you at Mt Hallowell. (1 being most important, 7 being least important)
14) Before we move on to asking about any concerns you may have, is there anything else you would like to tell us about what is special to you about Mount Hallowell? (Question type: Essay)
15) What issues do you think the new Management Plan for the Mount Hallowell reserve should address?(Select all applicable)
Vehicle access
Signage and trail way-finding
Multi-use of the Reserve
Dogs

Weeds, ferals and disease
Illegal clearing
Walkers
Mountain Bike use
Illegal camping
Bushfire risk
Provision of infrastructure (e.g. carparking, bins, toilets, picnic tables etc)
All abilities access
Safety
Littering
Not sure
Emergency response
Education
Other (please specify)
16) With regard to your last response, tell us what are your primary issues? (Select three)
Vehicle access
Signage and trail way-finding
Multi-use of the Reserve
Walkers
Mountain Bike use
Dogs
Weeds, ferals and disease
Illegal clearing
Illegal camping
Littering
Bushfire risk
Provision of infrastructure (e.g. carparking, bins, toilets, picnic tables etc)
All abilities access
Safety
Emergency response
Education
Not sure
Other (please specify)
17) Please rate the following concerns by level of importance to you.(1 being most important, 12 being least important)
18) Is there any more detail you would like to provide about your concerns about the future of the Mount Hallowell reserve? (Question type: Essay)

Survey outcomes

Key insights and analysis including quantifiable measures based on the survey responses include:

Demographics and Participation

- **Total Responses:** 216 responses. The survey received a significant number of responses from various participants, including residents, visitors, and stakeholders.
- **Age Groups:** Respondents were from diverse age groups, with a notable representation from the 50-64 and 65+ age brackets.
 - 17 years or younger: 2 (0.9%)
 - 18-29 years: 3 (1.4%)
 - 30-49 years: 52 (24.2%)
 - 50-64 years: 93 (43.3%)
 - 65+ years: 65 (30.2%)
- **Gender:**
 - Female: 137 (63.7%)
 - Male: 73 (34.0%)
 - Prefer Not To Say: 4 (1.9%)
 - Other: 1 (0.5%)

Key Themes and Concerns

1. Biodiversity and Conservation

- **Positive Mentions:** 184 mentions (91.09%)

Many respondents highlighted the importance of preserving the biodiversity and natural beauty of Mount Hallowell. They emphasised the need to protect endangered species like the Black Cockatoos and maintain the area's ecological integrity.

- **Negative Mentions:** (8.91%) Concerns were raised about the potential threats to biodiversity from activities such as mountain biking, which could lead to erosion, spread of dieback, and disturbance to wildlife.

2. Recreational Use

- **Positive Mentions:** 195 mentions (96.53%). There is support for recreational activities such as walking, bird watching, and enjoying nature. Very few respondents support the inclusion of designated mountain bike trails.
- **Negative Mentions:** (10.40%) Significant opposition to mountain biking, with concerns about environmental damage, safety risks to other users, and increased vehicle traffic.

3. Natural Beauty and Peace

- **Positive Mentions:** 199 mentions (98.51%) The natural beauty, peace, and tranquility of the reserve were frequently mentioned. Respondents value the opportunity to connect with nature and enjoy the scenic views.
- **Negative Mentions:** (1.49%) Minimal negative mentions, mostly related to potential disturbances from increased human activity.

4. Environmental Protection

- **Positive Mentions:** 127 mentions (62.87%) Respondents emphasised the need for strong environmental protection measures, including better enforcement of rules and regulations to prevent illegal activities.
- **Negative Mentions:** (37.13%) Concerns about the Shire's lack of enforcement and potential for environmental degradation.

5. Fire Risk Management

- **Positive Mentions:** 112 mentions (55.45%) The need for effective fire risk management, including controlled burns and other mitigation strategies, was mentioned.
- **Negative Mentions:** (44.55%) Concerns about the buildup of dead matter and associated bushfire risk.

6. Infrastructure and Education

- **Positive Mentions:** 101 mentions (50%) Some respondents suggested improvements in infrastructure, such as educational signage, car parks, and trail heads, to manage visitor impact and promote conservation.
- **Negative Mentions:** (4.95%) Minimal negative mentions, mostly related to the need for better infrastructure and educational signage.

7. Community and Social Well-being

- **Positive Mentions:** 68 mentions (33.66%) The Reserve is seen as an important space for community interaction and social well-being. It is valued for its accessibility and the role it plays in the lives of local residents.
- **Negative Mentions:** (2.48%) Minimal negative mentions, mostly related to potential exclusion of certain user groups.

Quantified Mentions of Mountain Biking

- **Total Mentions:** 21 mentions (10.4%)
 - **Positive Mentions:** (0.99%) 2 responses were positive, supporting the inclusion of designated mountain bike trails.
 - **Negative Mentions:** (3.96%) 8 responses were negative, expressing concerns about environmental damage, safety risks, and the impact on other users.

FEEDBACK ON DRAFT MANAGEMENT PLAN

The draft management plan and survey was released by the Shire of Denmark on Wednesday 18 June 2024 and the public submission period closed on Friday 18 July 2025.

Invitations and supporting materials were prepared, including:

- Survey (electronic submissions via Shire of Denmark webpage and paper copies at Shire of Denmark Office);
- Electronic and paper copies of draft document;
- Media release by Shire of Denmark (see Appendix 1);
- Material on ‘Your Denmark’ webpage; and

Questions in the survey focused on feedback on the Draft Management Plan for Kooryunderup – Mount Hallowell and are summarised below.

SURVEY QUESTIONS

Full Name/ email address
1) Age
17 years or younger
18 - 29 years
30 - 49 years
50 - 64 years
65+ years
2) Gender
Female
Male
Prefer Not To Say
Other
3) Place of Residence
Denmark
Hay
Ocean Beach
Scotsdale/Shadforth
Parryville/Kordabup
Peaceful Bay/Bow Bridge/Hazelvale/Kentdale/Nornalup
William Bay
Do not live in the Shire of Denmark
4) Which stakeholder interests do you represent?
(Please select all that are applicable to you)
<ul style="list-style-type: none">• Individual• Denmark community member• Bibbulmun Track Foundation member• Bibbulmun Track Maintenance volunteer (Mt Hallowell section)

- Denmark Bird Group member
- Denmark Dog Owners Group member
- Denmark Environment Centre employee, member or volunteer
- Denmark Equestrian Club member
- Denmark Mountain Bike Club member
- Department of Biodiversity Conservation and Attractions representative
- Department of Planning, Lands and Heritage Indigenous Heritage South Coast Region representative
- Denmark Running Club member
- Green Skills Denmark employee or volunteer
- Department of Water and Environmental Regulation SC Region representative
- Friend of Kooryunderup / Mount Hallowell member
- Denmark Equestrian Management Group member
- Kwoorabup Barefoot Walking Group member
- Ocean Beach Bushfire Brigade member
- Ocean Beach resident or ratepayer
- Private property owner with a shared boundary with the Mt Hallowell reserve
- South Coast Bushcare Services member or volunteer
- Water Corporation SC Region representative
- None of the above

5) Do you agree that each of these six goals addresses the concerns raised by survey participants, and forms an effective management plan?

1. **Conservation:** The primary goal of managing the Reserve is to protect the natural environment.
2. **Recreation and Infrastructure:** The goal is to encourage low-key recreation activities (such as walking and hiking) where these don't have a negative impact on the environment.
3. **Fire Management:** The goal is to protect the environment and the lives/property of surrounding landowners through best-practice fire management and wildfire suppression.
4. **Culture and Heritage:** As a significant cultural and heritage site for Traditional Custodians, the goal is to protect these values.
5. **Community Engagement, Research and Education:** The goal is to raise awareness of the Reserve's intrinsic and educational values while promoting ongoing citizen science and other research initiatives.
6. **Land Use Planning and Compliance:** The goal is to manage threats such as fire and the spread of dieback, as well as user safety, and the interface with neighbouring properties.

Do you agree that each of these six goals form an effective Draft Management Plan?

Strongly agree

Somewhat agree

Neither agree nor disagree

Somewhat disagree

Strongly disagree

6) Please provide any feedback you have regarding your responses to Question 5.

Essay response

7) The Draft Management Plan proposes that the construction of additional or expanded trails for biking not be permitted. Do you agree or disagree?

Strongly agree

Somewhat agree

Neither agree nor disagree

Somewhat disagree

Strongly disagree

8) The Draft Management Plan proposes that the current unauthorised bike trails and jumps should be closed and rehabilitated. Do you agree or disagree?

Community Feedback – Draft Management Plan

Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree
9) The Draft Management Plan proposes that biking of all types be excluded from the Reserve, including on the existing emergency access tracks (firebreaks). Do you agree or disagree?
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree
10) Please provide any feedback you have regarding the Draft Management plan's proposals on biking in Kooryunderup/Mt Hallowell)
Essay response
11) The Draft Management Plan proposes that dogs are to be prohibited on the Bibbulmun Track. Do you agree or disagree?
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree
12) The Draft Management Plan proposes dogs be allowed on leashes along the emergency access track from Lights Road to Monkey Rock and on the eastern and northern tracks (excluding the Bibbulmun Track). Do you agree or disagree?
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree
13) Please provide any feedback you have regarding the Draft Management Plan's proposals on dogs in Kooryunderup/Mt Hallowell.
Essay response
14) Are there any other comments that you would like to make about the management of Kooryunderup/Mount Hallowell and/or the Draft Management Plan?
Essay response

Survey Outcomes

Total Survey Responses: 226 received by Aurora Environmental.

Demographics and Participation

The demographic data indicate that the survey reached a broad cross-section of the community. A significant proportion of respondents were aged 45 and above, suggesting the results may reflect the

views of more mature residents. Female participation slightly outnumbered male, and the majority of respondents reside within the Denmark local government area, reflecting strong local engagement.

1) Age

The following responses were received regarding age:

Age Group	Count	Percentage
50 to 64 years	75	33.2%
30 to 49 years	66	29.2%
65+ years	64	28.3%
17 years or younger	13	5.8%
18 to 29 years	8	3.5%

The majority of respondents (over 90%) were 30 years and older, with particularly strong representation from the 50–64 age group. Younger voices (under 30) were less represented, which may bias results toward perspectives of long-term residents and older community members.

Trends by Age Group

Notably, younger respondents (under 25) strongly opposed restrictions on biking, while older respondents tended to support access controls and conservation measures. This generational divide underscores the need to balance recreational use with ecological preservation in a way that respects all age groups.

- Younger respondents (17 or younger): 100% disagreed with biking restrictions
- Older respondents (55+): largely agreed with environmental and dog proposals
- Indicates divide between recreation vs protection priorities

2) Gender

The following responses were received regarding gender:

- Female: 122 (53.9%)
- Male: 92 (40.7%)
- Other / Prefer not to say: 12 (5.3%)

More females than males provided comments on the Draft plan.

3) Place of Residence

The following responses were received regarding place of residence

- Denmark LGA: 190 (84.1%)
- Outside Denmark: 36 (15.9%)
- Most people providing comments were from within the Shire of Denmark (noting that some external submissions from people who live outside the Shire were excluded from analysis).

4) Which stakeholder interests do you represent?

Most participants identified with multiple roles, such as local residents, bushwalkers, and conservationists. This diversity highlights a community with layered interests in Kooryunderup / Mt Hallowell—spanning recreation, environmental values, and cultural heritage.

- Local resident: 171
- Bushwalker: 11
- Conservationist: 96
- Visitor: 66
- Recreational user: 53
- Environmental professional: 41
- Other (e.g. mountain biker, educator): < 40 each

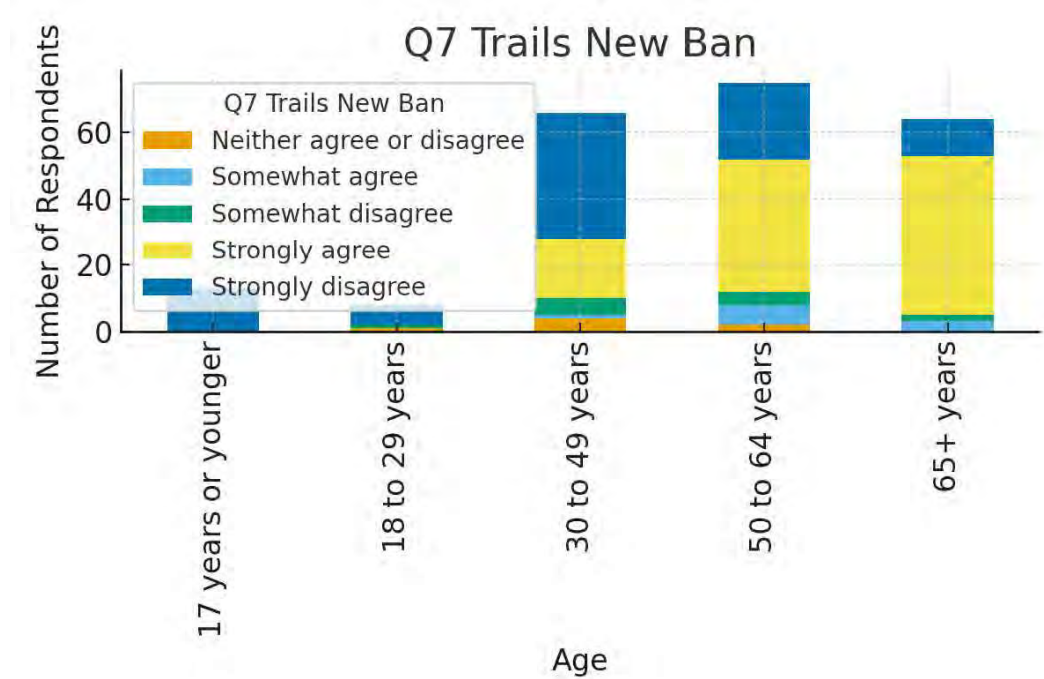
5) Do you agree that each of these six goals addresses the concerns raised by survey participants, and forms an effective management plan?

Overall agreement with the six proposed goals was high, with around 73% of respondents either strongly or somewhat agreeing. This suggests general alignment with the vision presented in the Draft Management Plan, particularly in areas related to conservation and cultural heritage.

7) The Draft Management Plan proposes that the construction of additional or expanded trails for biking not be permitted. Do you agree or disagree?

- Strongly agree: 106 (46%)
- Strongly disagree: 91 (40%)
- Somewhat disagree: 12 (5%)
- Somewhat agree: 10 (4%)
- Neither agree or disagree: 7 (3%)

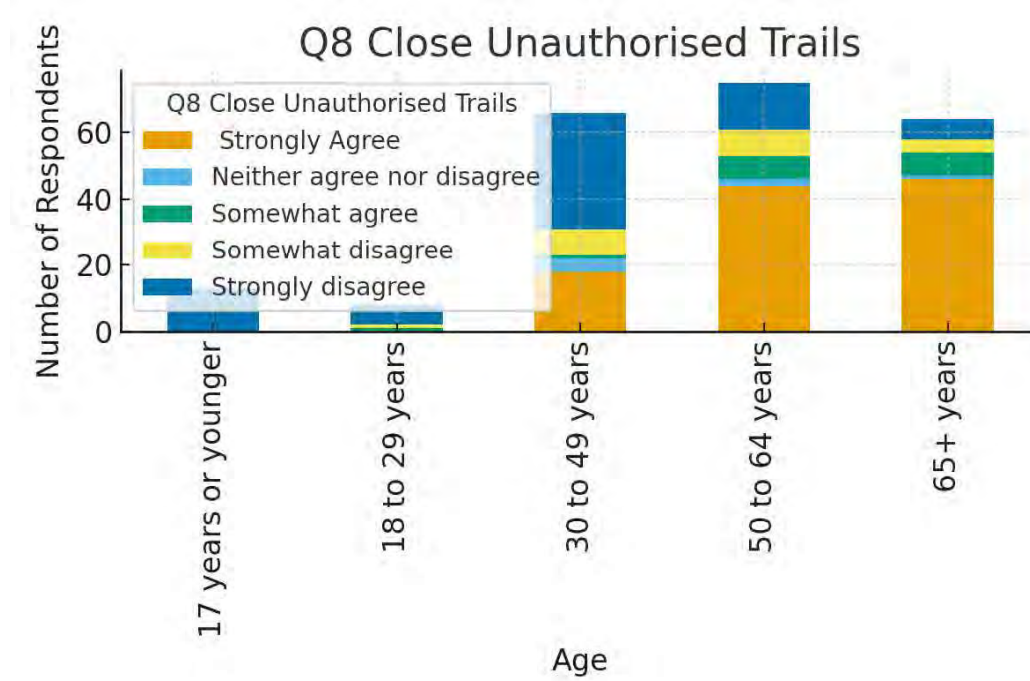
Q7 Trails New Ban



8) The Draft Management Plan proposes that the current unauthorised bike trails and jumps should be closed and rehabilitated. Do you agree or disagree?

- Strongly Agree: 108 (47%)
- Strongly disagree: 74 (32%)
- Somewhat disagree: 21 (9%)
- Somewhat agree: 16 (7%)
- Neither agree nor disagree: 7 (3%)

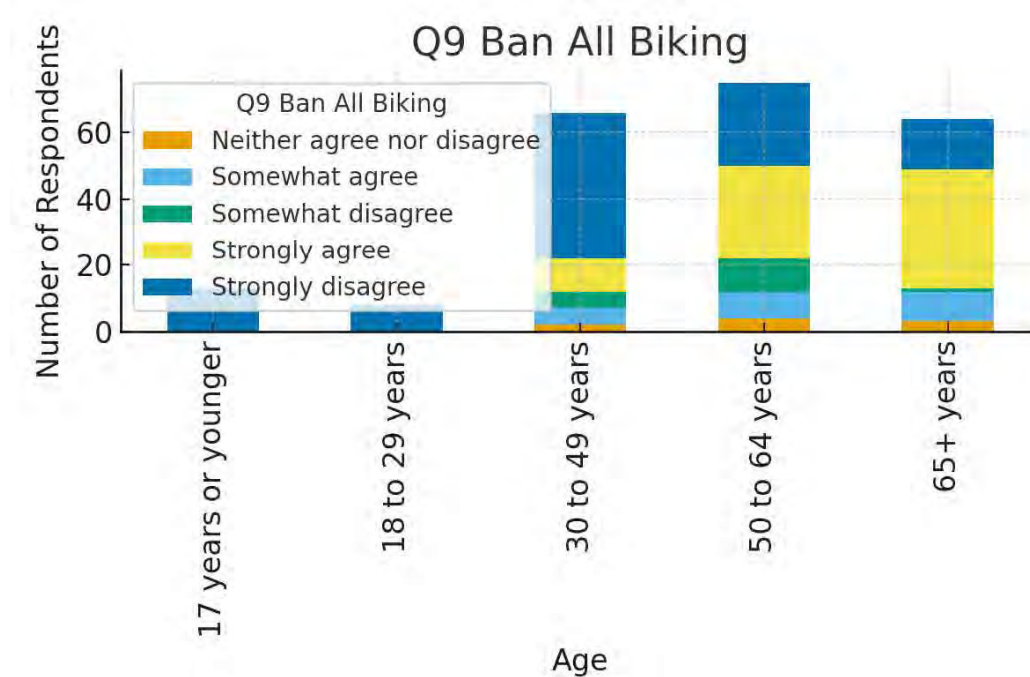
Q8 Close Unauthorised Trails



9) The Draft Management Plan proposes that biking of all types be excluded from the Reserve, including on the existing emergency access tracks (firebreaks). Do you agree or disagree?

- Strongly disagree: 105 (46%)
- Strongly agree: 74 (33%)
- Somewhat agree: 22 (10%)
- Somewhat disagree: 16 (7%)
- Neither agree nor disagree: 9 (4%)

Q9 Ban All Biking



Supporters of mountain biking argue:

- Biking promotes youth engagement, health, and nature connection.
- Trails have been used for decades with minimal impact.
- Shared-use models work in other towns (e.g., Nannup, Walpole).
- Firebreaks and SE corner are suitable for low-impact biking.

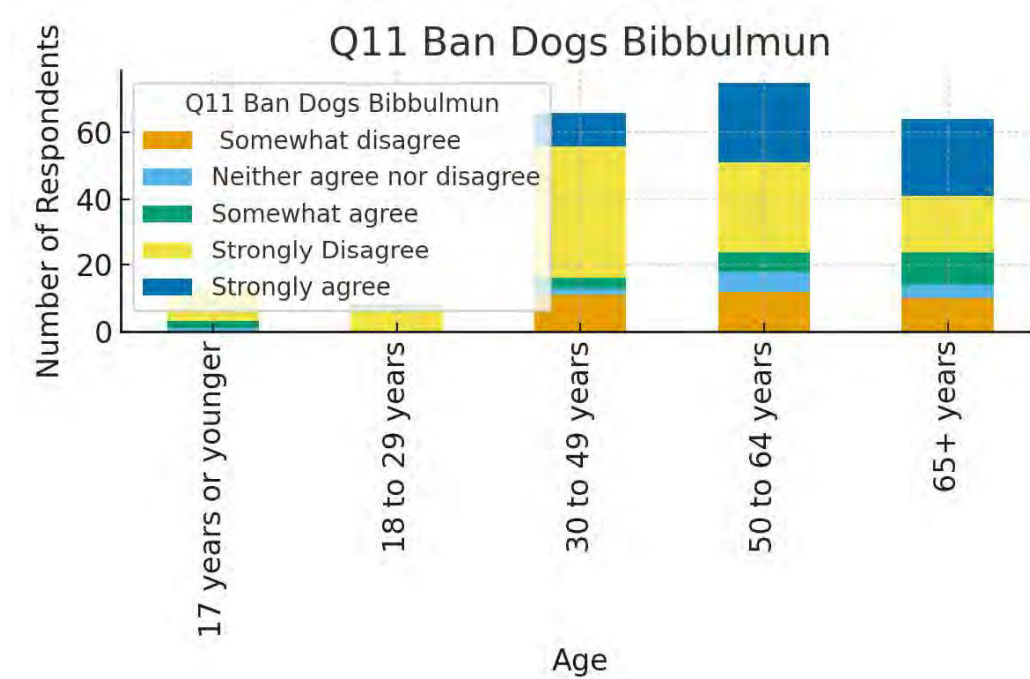
Supporters of mountain bike exclusion argue:

- Mt Hallowell is an A-Class Reserve with high conservation value.
- Biking contributes to erosion, dieback spread, and habitat fragmentation.
- Illegal trail building and vandalism are ongoing issues.
- Enforcement is impractical with current Shire resources.

11) The Draft Management Plan proposes that dogs are to be prohibited on the Bibbulmun Track. Do you agree or disagree?

- Strongly Disagree: 101 (45%)
- Strongly agree: 58 (26%)
- Somewhat disagree: 33 (15%)
- Somewhat agree: 21 (9%)
- Neither agree nor disagree: 13 (6%)

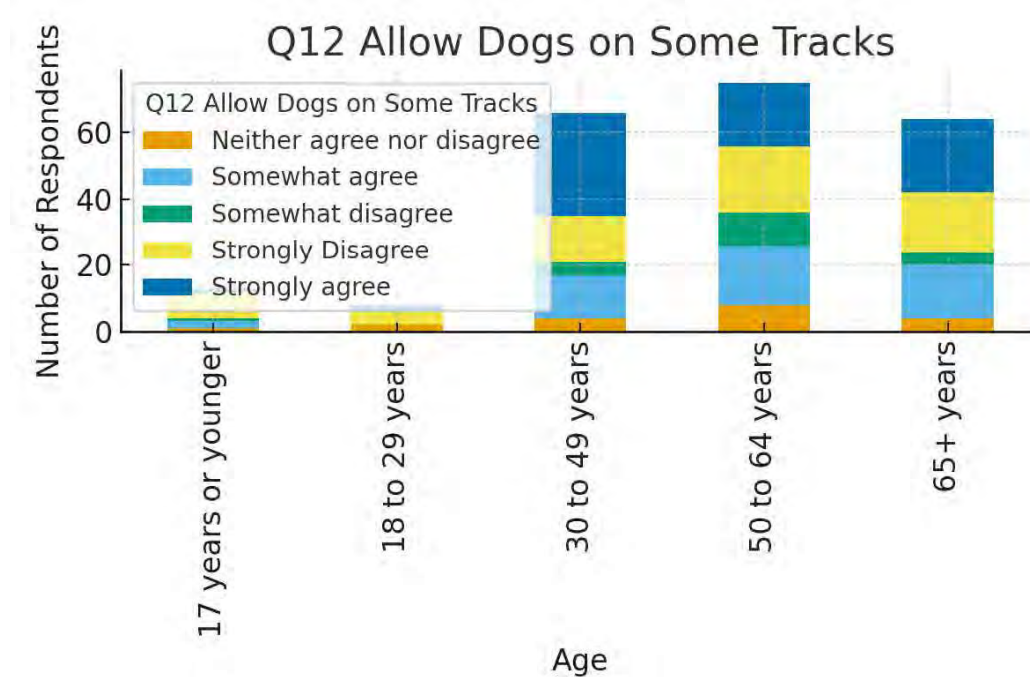
Q11 Ban Dogs Bibbulmun



12) The Draft Management Plan proposes dogs be allowed on leashes along the emergency access track from Lights Road to Monkey Rock and on the eastern and northern tracks (excluding the Bibbulmun Track). Do you agree or disagree?

- Strongly agree: 75 (33%)
- Strongly Disagree: 64 (28%)
- Somewhat agree: 49 (22%)
- Neither agree nor disagree: 19 (8%)
- Somewhat disagree: 19 (8%)

Q12 Allow Dogs on Some Tracks



These charts show distinct generational divides. Younger respondents are generally opposed to restrictions, favouring recreation access, while older respondents lean more toward conservation and restrictions. Middle-aged groups (30–49 years) tend to be more balanced but still support controlled access.

Supporters for dogs off leashes argue:

- SE corner is a vital off-leash area used daily by locals.
- Off-leash walking supports mental health, social interaction, and elderly mobility.
- Few alternative off-leash areas exist in Denmark.
- Responsible ownership and signage can mitigate risks.

Opponents of dogs off leashes or dogs in the Reserve argue:

- Dogs disturb wildlife and leave waste.
- Leash rules are often ignored.
- Conservation zones require strict protection.

Most submissions (226) were via the survey. However, 15 groups and individuals provided more detailed submissions, which were summarised in Aurora Environmental, 2025¹.

¹ **Aurora Environmental (2025)** Kooryunderup – Mount Hallowell – Management Plan Community Feedback on Draft Plan – Shire of Denmark, WA. Prepared for the Shire of Denmark. AA2025/195. V2.

APPENDIX 7

Walk Trail Brochure

Caring For Country

Granite Outcrops

The granite outcrops are a dominant feature of the Mount Hallowell Reserve. They create special niches for vegetation, both on the rock and in the surrounding fringes. They are sensitive areas and can be culturally significant.

Please tread carefully and refrain from moving rocks which in the past may have been placed purposefully by Noongar people for cultural purposes.

Invasive Weeds

Many invasive weed species in the reserve are "garden escapees" from adjacent subdivisions. Weeds have also colonised disturbed areas. South Coast Bushcare Services Inc. (formerly Denmark Weed Action Group Inc.) continue to control invasive weed species within the reserve, supporting natural regeneration of the bush. We can be contacted for advice on how to identify and control weeds.



Contact

Rear 33 Strickland Street, Denmark WA 6333

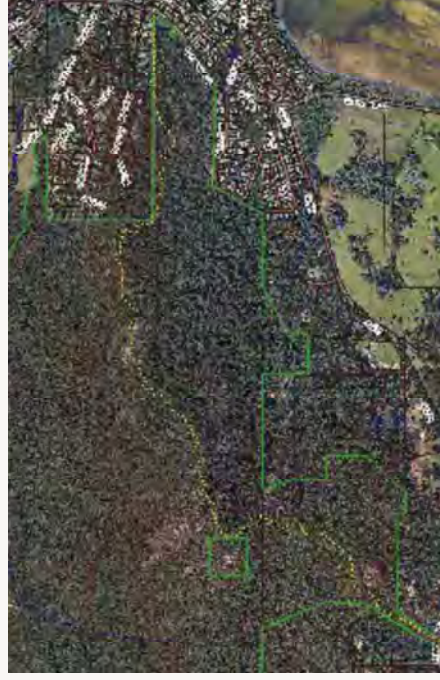
Email: scbs@westnet.com.au

Mobile: 0448 388720

Sheila Hill Memorial Walk Trail and Bibbulmun Track

Mount Hallowell and Monkey Rock

Bibbulmun Track 



Mount Hallowell Reserve is located approximately 5km south-west of Denmark. It can be accessed by pedestrians via the Bibbulmun Track/Sheila Hill Memorial Trail. The Bibbulmun Track runs between Ocean Beach Road and Lights Road via the summit of Mount Hallowell and Monkey Rock.

The trails pass through marri/ jarrah and karri forest and over expansive granite outcrops. There are spectacular views of the coast and inlet at the summit.

A shorter return walk to Monkey Rock can be accessed from Lights Road.

Kooryunderup Mount Hallowell Reserve



"The Jewel in the Crown"
Kooryunderup means 'place of many bush
Kangaroo'



Supported by the Shire of Denmark Community
Environmental Education Program

Birdlife in the Forest

White-browed babblers can be seen in the reserve foraging mostly on the ground in noisy flocks. They build communal roosting nests of twigs and sticks, usually in dead or partly living trees.



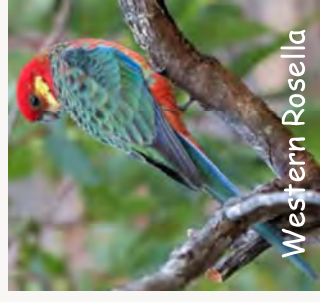
White-browed Babbler



Red Capped Parrot



New Holland Honeyeater



Western Rosella



Red-eared Firetail Finch

A Place for Conservation

Mount Hallowell Reserve consists of mostly virgin (unlogged) old growth forest. It is a conservation priority area for the maintenance of the flora, fungi and fauna and is recognized as a significant scientific reference site. It is one of the few remnant long-unburnt areas in the South West, the last recorded fire was in 1937.

Dieback in the Reserve

Dieback (*Phytophthora cinnamomi*) is a deadly plant disease that effects over 40% of native WA plant species. Many of these susceptible plants are only found in the South-west,

these include jarrah, banksias, grasstrees (*Xanthorrhoea*) and zamia palms.

Dieback is present in the northern area of the reserve. It can spread through the movement of soil. Look for signage and clean footwear before moving into Dieback-free areas. Stick to designated trails.



References: Mount Hallowell Management Plan 2008
Plants of Denmark Walk Trails: Traditional Noongar Uses
A Study into the Risk of *Phytophthora Dieback* in Ten Peri-urban Reserves within the Shire of Denmark

Common Plants



Common name: Tassel Flower
Scientific name: *Leucopogon verticillatus*
Uses: the berries are edible



Common name: Karri Oak
Scientific name: *Allocasuarina decussata*



Noongar name: Kulli, Gulli
Uses: Soft needles were used for bedding

Fungi

In late autumn fungi emerge around Mount Hallowell. In WA about 500 species of fungi have been recorded most found in the South-west. There are more yet to be discovered. Fungi are vital for the health of vegetation and food for small mammals.

For more information refer to the Guide to *Macrofungi* in Mount Hallowell and Wilson Inlet Foreshore Reserves.



Boletus fungi (see photo) have a sponge-like surface under the cap rather than gills. The flesh turns blue/black when disturbed.

APPENDIX 8

Photographs



Photograph 1

Wayfinding markers for Sheila Hill Memorial Trail are in poor condition or missing.



Photograph 2

Emergency access barrier gate – Effective gate when excluding vehicles

Kooryunderup – Mount Hallowell Management Plan Review
2025





Photograph 3

The car park on Lights Road is in fair condition and would benefit from formalisation of car bays, boundary, surfacing and drainage. Trailhead signs are in poor condition. Signage directing walkers back to Sheila Hill Memorial Trail car park are needed.



Photograph 4

Emergency access along residences' boundary (Heather Road) is in eroded condition and not safe for emergency access. The area needs to be properly drained and re-sheeted with gravel.





Photograph 5

Entry to Bibbulmun Track from Ocean Beach Road would benefit from rationalisation of signs and new trail head signage



Photograph 6

Emergency access gate suitable for low traffic areas. Dieback signage present.

☉ 198°S (M) ● 34°59'44"S, 117°19'10"E ±4m ▲ 49m



Photograph 7

The existing emergency access behind residences on Pember Way and Ravenhill Heights in Harrington Break impinges on private property and needs to be realigned along the Reserve boundary. Construction of a low fuel zone is planned.

☉ 337°NW (M) ● 34°59'43"S, 117°19'10"E ±4m ▲ 48m



Photograph 8

Northern access track is suitable for emergency access.



Photograph 9

The Sheila Hill Memorial Trail car park is in fair condition. A deep drain is shielded with boulders and needs barrier fencing. Trailhead signage needs to be upgraded. The carpark would benefit from being formalised with delineation of car parking bays, drainage works and resheeting.



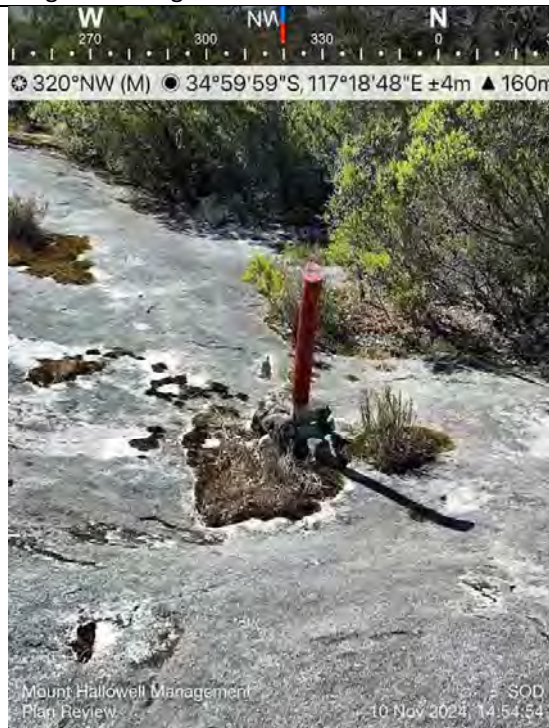
Photograph 10

A section of the Sheila Hill Memorial Trail.



Photograph 11

Low fuel zone on the left and walk trail/ emergency access in the centre. Residents on the left are using the Reserve for parking and storage.



Photograph 12

Use of granite rocks to hold up signs should be avoided (cultural heritage and habitat disturbance).



Photograph 13

The Boot Cleaning Stations are well located (based on previous dieback survey). However, the stations need to be maintained (brushes replaced and removal of soil build up).



Photograph 14

A section of the Sheila Hill Memorial Trail also serves as an emergency access track



Photograph 15

Views from Kooryunderup – Mount Hallowell are spectacular.



Photograph 16

Many aspects of Kooryunderup – Mount Hallowell are likely to hold cultural and heritage significance for Traditional Custodians. Completion of a cultural heritage survey is recommended.

Kooryunderup – Mount Hallowell Management Plan Review
2025





Department of Planning,
Lands and Heritage



Your ref: REM.39 / OCR2511104575
Our ref: 2503489
File ref: 01241-2001
Enquiries: simon.judge@dplh.wa.gov.au 6552 4074

David King
Chief Executive Officer
Shire of Denmark
PO Box 183
DENMARK WA 6333

Via email to: david.king@denmark.wa.gov.au

Dear David

Draft Kooryunderup / Mount Hallowell Management Plan 2025–2035 – Agency Advice and Suggested Amendments

Thank you for providing the draft Kooryunderup/Mount Hallowell Management Plan 2025–2035 to the Department of Planning, Lands and Heritage for review pursuant to section 49 of the *Land Administration Act 1997* (LAA).

As part of the assessment process, we referred the draft plan to the Department of Biodiversity, Conservation and Attractions (DBCA) and the Department of Water and Environmental Regulation (DWER) to seek their input and expert advice. Both agencies have now provided responses, and several matters require amendment or clarification by the Shire prior to DPLH progressing further.

DBCA Advice

Dog Access

DBCA has advised that it is their position that while some perimeter trails may continue to allow dogs on lead, dogs should not be allowed on the section of the Bibbulmun Track within the Reserve.

We understand that the inclusion of the Bibbulmun Track as an identified dog walking trail and the addition of a dog walking area adjacent to the properties on Heather Road occurred following the Shire of Denmark's September 2025 Council meeting. This Department has received representations from members of the public who are unhappy with the substance of this amendment and the process of its adoption. The survey results represented in the Management Plan also suggests that this issue was contentious.

It is strongly recommended that further consultation on this matter be undertaken with the Denmark community, the Wagyl Kaip Southern Noongar Aboriginal Corporation, DBCA and the Bibbulmun Track Foundation. Should dog access be generally supported as proposed in the current draft plan, we recommend that specific reference to management activities (for example, signage, dog waste collection facilities, Ranger/compliance actions) be included in the Management Plan.

Should the Shire consider further consultation on this matter unnecessary, please advise us of the reasons for your decision.

Dieback Management

DBCA noted that the existing dieback mapping (2014) is now outdated. Updated mapping would substantially improve current and future management actions, particularly in relation to access restrictions within unaffected areas. It is noted that the Management Plan identifies updated Dieback mapping as an activity to be undertaken this year. Until updated information is available, minimising access points and trails and progressing with the recommended closure and rehabilitation of several trail areas should assist in reducing the risk in the spread of dieback.

Fire History and Management

DBCA identified that the fire history section in the draft plan overlooks a prescribed burn undertaken in 1985. Formal advice should be obtained from DBCA as to the prescribed burn and fire history of the area and this information be incorporated into the final plan. DBCA also reaffirmed the fire risk associated with long-unburnt fuels and steep terrain and emphasised the importance of maintaining access for rapid fire response.

In addition, DPLH is aware that supplementary infrastructure to support fire mitigation or fire operations on the Reserve may be considered by Council. As the installation of such infrastructure may require site disturbance within the Kooryunderup/Mount Hallowell reserve, it is recommended that the Shire include any known or proposed works and infrastructure in the Management Plan.

DWER Advice

DWER advised that although the draft Management Plan does not propose vegetation clearing, any future expansion of car parking or similar site works may trigger requirements under section 51C of the *Environmental Protection Act 1986*. The final plan should acknowledge that clearing can only occur under a valid permit or applicable exemption, including relevant fire-risk exemptions.

DWER also noted an incident of illegal clearing within the Reserve in 2024. The plan should therefore include strengthened management measures, including:

- improved gate maintenance;
- monitoring of unauthorised access points; and
- installation of the proposed gate at the south-east corner behind Heather Road.

Additional Matters Identified Through DPLH Review

Monitoring Framework

The monitoring framework does not establish clear timelines or review cycles for evaluating the success of key management actions, including weed control effectiveness, dog-compliance rates, and any impacts associated with cycling activity. Introducing defined intervals (e.g. annual or biennial review) would strengthen accountability and enable adaptive management.

Enforcement Strategy

The enforcement approach for dog-on-lead requirements and cycling restrictions is insufficiently detailed. The plan would benefit from outlining enforcement responsibilities, methods (e.g. patrols, signage, community education), and escalation processes for non-compliance.

Visitor Impact Assessment

The current discussion of visitor impacts is limited. A clearer methodology for assessing ecological impacts associated with increased visitation—including trampling, disturbance to fauna, trail widening, and erosion—should be incorporated. This may include periodic ecological surveys, trail-condition assessments, or visitor-use monitoring.

Funding and Resourcing

The plan does not identify the funding or resourcing required for implementation of key actions. Clarification of resource needs—whether through existing operational budgets, grant funding, or partnerships—would assist in understanding feasibility and delivery over the life of the plan.

To enable finalisation of the assessment by DPLH, the Shire is requested to review the above comments, make amendments as necessary and return the draft Kooryunderup/Mount Hallowell Management Plan 2025–2035 for further assessment pursuant to section 49 of the LAA.

Should you have any queries, please contact Simon Judge on the details above.

Yours sincerely



Rachel Nelson
A/Manager
Land Use Management
South West Great Southern

19 February 2026

9.5.1 KOORYUNDERUP–MT HALLOWELL MANAGEMENT PLAN 2025-2035

File Ref:	REM.39
Applicant / Proponent:	Not Applicable
Subject Land / Locality:	Kooryunderup–Mt Hallowell Reserve 46618
Disclosure of Officer Interest:	Nil
Date:	11 September 2025
Author:	Xavier Menagé, Sustainability Officer
Authorising Officer:	Rob Westerberg, Director Infrastructure & Assets 9.5.1a – Kooryunderup–Mt Hallowell Management Plan 2025-2035
Attachments:	9.5.1b – Recommended Amendments 9.5.1c – Summary of Community Survey 1 9.5.1d – Summary of Community Survey 2

IN BRIEF

1. In accordance with the Scope of Works endorsed by Council on 29 October 2024, and following extensive community engagement and consultation, which included the development of a Draft Management Plan and final public review of that document (comprising input from Shire officers), the Kooryunderup–Mt Hallowell Management Plan 2025-2035 has been finalised and is now presented to Council for endorsement.

VOTING REQUIREMENTS

2. Simple majority.

COUNCIL RESOLUTION & OFFICER RECOMMENDATION	ITEM 9.5.1
MOVED: CR ORMSBY	SECONDED: CR LEWIS
That Council:	
1. ENDORSE the Kooryunderup–Mt Hallowell Management Plan 2025-2035, subject to the following amendments:	
a) Amending Figures 6-11, consistent with Attachment 9.5.1b, to accept a one-way bike-only trail (north to south one-way direction) and retain a walk trail, with both trails on existing cleared alignment and connecting the upper and lower firebreaks; and	
b) Adding or amending associated actions and text in accordance with (a).	
2. REQUEST the CEO to forward the amended Plan to the Department of Planning Lands and Heritage for Ministerial Approval.	
AMENDMENT	
MOVED: CR DEVENPORT	SECONDED: CR WIGGINS
Add a part 1 c) that reads, <i>“Amending Figures 6-11 to allow dogs without leash on the firebreaks running parallel to Heather Road, connecting to Forest Road, and including the adjacent parkland cleared areas.”</i>	
CARRIED: 8/0	Res: 160925

TOTAL VOTES FOR: 8

Cr Campbell, Cr Wiggins, Cr Youel, Cr Gibson, Cr Devenport, Cr Ormsby, Cr Lewis and Cr Phillips.

TOTAL VOTES AGAINST: 0

AMENDMENT

MOVED: CR DEVENPORT

SECONDED: CR YOEUL

Add a part 1 d) that reads, "Amending Figures 6-11 to allow dogs with leash for the sections of the Bibbulmun Track currently identified as dogs not allowed."

CARRIED: 6/2

Res: 170925

TOTAL VOTES FOR: 6

Cr Wiggins, Cr Youel, Cr Gibson, Cr Devenport, Cr Ormsby and Cr Phillips.

TOTAL VOTES AGAINST: 2

Cr Campbell and Cr Lewis.

AMENDMENT

MOVED: CR GIBSON

SECONDED: CR ORMSBY

Add a part 1 e) that reads, "*Include a management action to control domestic and feral cats through a program of trapping and education in collaboration with relevant community organisations which targets residents within cat-roaming distance of the reserve and encourages actions such as (but not limited to) the construction of cat runs, trapping of cats within and adjoining the reserve and the distribution of information about responsible cat ownership and the damage roaming cats do to native fauna.*"

CARRIED: 8/0

Res: 180925

TOTAL VOTES FOR: 8

Cr Campbell, Cr Wiggins, Cr Youel, Cr Gibson, Cr Devenport, Cr Ormsby, Cr Lewis and Cr Phillips.

TOTAL VOTES AGAINST: 0

AMENDED MOTION

That Council:

1. ENDORSE the Kooryunderup–Mt Hallowell Management Plan 2025-2035, subject to the following amendments:
 - a) Amending Figures 6-11, consistent with Attachment 9.5.1b, to accept a one-way bike-only trail (north to south one-way direction) and retain a walk trail, with both trails on existing cleared alignment and connecting the upper and lower firebreaks;
 - b) Adding or amending associated actions and text in accordance with (a); and
 - c) Amending Figures 6-11 to allow dogs without leash on the firebreaks running parallel to Heather Road, connecting to Forest Road, and including the adjacent parkland cleared areas;
 - d) Amending Figures 6-11 to allow dogs with leash for the sections of the Bibbulmun Track currently identified as dogs not allowed; and

e) Include a management action to control domestic and feral cats through a program of trapping and education in collaboration with relevant community organisations which targets residents within cat-roaming distance of the reserve and encourages actions such as (but not limited to) the construction of cat runs, trapping of cats within and adjoining the reserve and the distribution of information about responsible cat ownership and the damage roaming cats do to native fauna.

2. REQUEST the CEO to forward the amended Plan to the Department of Planning Lands and Heritage for Ministerial Approval.

THE AMENDED MOTION BECAME THE SUBSTANTIVE MOTION WHICH WAS PUT AND CARRIED: 6/2 Res: 190925

TOTAL VOTES FOR: 6
Cr Wiggins, Cr Youel, Cr Gibson, Cr Devenport, Cr Ormsby and Cr Phillips.

TOTAL VOTES AGAINST: 2
Cr Campbell and Cr Lewis.

LOCATION

3. Kooryunderup–Mt Hallowell Reserve 46618 (refer to Figure 2 of attached Management Plan).

BACKGROUND

4. At the Ordinary Council Meeting on 29 October 2024, Council endorsed Aurora Environmental as the preferred independent environmental consultant to carry out an in-depth review and update of the existing Kooryunderup–Mt Hallowell Management Plan (2008). Council endorsed the project Scope of Works and Community Engagement Plan at the same meeting.
5. The Scope of work for this project was to:
 - Review and audit the 2008 plan's management actions
 - review the background information and undertake a literature review
 - map all existing tracks and trails across the Reserve
 - redefine the management goals consistent with the Reserve's purpose of 'Conservation and Recreation'
 - update management actions relevant to management goals, opportunities and constraints for both conservation and recreation.
6. As part of carrying out the agreed Scope of Works and Community Engagement Plan, there were requirements for community consultation to be conducted by the consultant and Shire throughout a staged process, including one-on-one stakeholder consultations and an initial community-wide survey, prior to Aurora preparing a Draft Management Plan.
7. The next phase of the project was to conduct a final public review of the Draft Management Plan, including a second community-wide survey, formal submissions and another opportunity for stakeholders to have face-to-face engagement with the

independent consultant. Shire officers were also involved in providing comment as part of this final review.

8. A finalised Management Plan, which incorporates feedback received from the community and delivers on the requirements for managing an A Class Reserve, is now being presented to Council for endorsement with the incorporation of the recommended amendments.

DISCUSSION / OFFICER COMMENTS

9. The goals outlined in the Management Plan are comprehensive, have broad community support and provide a strong framework for appropriately managing the Reserve into the future. These goals and the associated management actions have been structured to cover the following key areas:

- Conservation
- Recreation and Infrastructure
- Fire Management
- Culture and Heritage
- Community Engagement, Research and Education
- Land Use Planning and Compliance

Conservation

10. The conservation goal is the foundation of the management plan, aiming to protect and enhance the reserve's rich biodiversity. This involves safeguarding native vegetation communities, rare and threatened plant and animal species, fungi, and the ecological processes that sustain them. Actions include weed and dieback control, habitat rehabilitation, and ongoing monitoring. Conservation is prioritised, recognising the reserve's natural values as its most significant asset.
11. Community consultation revealed overwhelming support for conservation as the highest priority for Kooryunderup – Mount Hallowell. Survey responses and stakeholder interviews consistently identified biodiversity protection as the most important management focus, with many respondents expressing pride in the reserve's ecological richness and concern for threatened species. The plan's strong emphasis on conservation directly reflects this sentiment, ensuring that all other uses do not compromise natural values.

Recreation and Infrastructure

12. This goal seeks to provide opportunities for the community and visitors to enjoy the reserve through low-impact, passive recreation, while ensuring these activities do not compromise conservation values. Walking, hiking, running, birdwatching, and nature appreciation are encouraged, with infrastructure such as trails, signage, and car parks maintained to a high standard. Cycling is proposed to only be permitted on designated emergency access tracks, and unsanctioned mountain bike trails are identified to be closed and rehabilitated.
13. Consultation showed strong community support for passive recreation (such as walking, hiking, and birdwatching) while also revealing divided views on mountain biking and dog access. Many residents value the peace and natural experience the reserve offers, and

there is broad support for infrastructure upgrades that enhance safety and enjoyment without increasing environmental impact. The plan supports low-key recreation, restricting high-impact activities, and upgrading signage and facilities.

14. The Management Plan proposes to introduce notable changes to the current use of Kooryunderup – Mount Hallowell, particularly regarding dog walking and biking. At present, dog walking is unrestricted throughout the reserve; under the draft proposal, a substantial area in the south-east (see Figure 8 and 9 in the management plan) will be retained as an off-leash zone, while dog access will be restricted in all other areas to protect sensitive habitats. For biking, the status quo allows riding across the south-east corner, including firebreaks and various informal narrow tracks. The new plan proposes to limit biking activity strictly to the designated firebreaks in the southeast, as outlined in Figures 10 and 11 of the Management Plan, with all other tracks to be closed and rehabilitated to reduce environmental impact.
15. Currently, rock climbing and abseiling are generally unrestricted throughout the reserve. Historically, school groups and outdoor education tour operators have utilised an area near Monkey Rock for these activities. However, these are not open-access pursuits; each event or group must obtain case-specific permission from the Shire CEO before proceeding. This arrangement is a formal recommendation of the Management Plan, aiming to balance adventure recreation with the protection of sensitive habitats and cultural values. By requiring prior approval, the Shire can assess potential impacts on the environment and ensure that activities are conducted safely and respectfully, minimising risks to both the natural landscape and cultural heritage.

Fire Management

16. Fire management is a critical component of the plan, given the reserve's long-unburnt status and proximity to residential areas. The goal is to protect both the ecological integrity of the reserve and the safety of neighbouring properties through best-practice fire prevention, preparedness, and rapid response. This includes maintaining and upgrading emergency access tracks, creating and managing low fuel zones, and ensuring up-to-date fire management plans and maps are available to emergency services.
17. Community feedback recognised fire as a significant risk, but also expressed a strong desire to avoid unnecessary fuel reduction burns that could harm old-growth vegetation and biodiversity. Many residents value the unique long-unburnt character of the reserve and support targeted, science-based fire management rather than broad-scale burning. The plan's focus on strategic firebreaks, emergency access, and public education aligns with this nuanced view - balancing safety with ecological preservation and responding to the community's call for careful, informed fire management.

Culture and Heritage

18. This goal recognises Kooryunderup—Mount Hallowell as a place of deep cultural and heritage significance, especially for the Traditional Custodians. It commits to protecting and celebrating these values. The plan supports comprehensive cultural heritage surveys, integration of Indigenous knowledge, and respectful management of culturally significant sites and features. Interpretive signage and educational materials are proposed to be developed to share the area's cultural stories with visitors.

19. Stakeholder engagement and survey responses showed strong support for recognising and protecting the area's Aboriginal and European heritage. Many community members expressed interest in learning more about Noongar culture and supported the involvement of Traditional Custodians in management decisions. The plan's commitment to cultural surveys, interpretive signage, and respectful event management directly reflects these aspirations, ensuring that cultural values are not only protected but also shared and celebrated with the wider community.

Community Engagement, Research, and Education

20. This goal focuses on fostering a strong sense of community stewardship and involvement in the reserve's management. The plan encourages ongoing engagement with local residents, community groups, and volunteers through citizen science projects, educational programs, and collaborative management activities. Partnerships with schools, universities, and conservation organisations are promoted to support research and monitoring.
21. Consultation revealed a highly engaged community, with many residents and local groups already actively involved in conservation, education, and advocacy for the reserve. There is strong support for citizen science, educational activities, and transparent communication about management decisions. The plan's emphasis on community partnerships, research opportunities, and public education is a direct response to this enthusiasm, aiming to harness local knowledge and passion for the long-term benefit of Kooryunderup – Mount Hallowell.

Proposed Amendments to the Draft Mount Hallowell Draft Management Plan 2025 – 2035.

22. Officers recommend a deviation from the Management Plan to permit ongoing recreational use of the informal trails (walking and cycling) as shown in Attachment 9.5.1b. This recommendation is underpinned by several key factors that balance conservation priorities with community engagement and practical land management.
23. The trails in question have a longstanding history of walking and mountain bike use, with local youth, families and dog walkers utilising the trails for over 15 years. This sustained, community-driven activity has become an integral part of the Reserve's recreational landscape, reflecting both the preferences and needs of local residents.
24. While the primary value of the Reserve remains conservation, the opportunity for effective rehabilitation within this three-sided, residentially bounded area is significantly constrained without active buy-in from current users. Historical attempts to rehabilitate sections of the trail have faced notable challenges, with progress hampered by limited community support and ongoing use. Officers recognise that meaningful rehabilitation and reduction of illegal clearing is likely to succeed only if local users are engaged and supportive, particularly given the close proximity of residences and the established patterns of use.
25. To address the historical challenges associated with rehabilitation and the entrenched patterns of recreational use, officers recommend utilising the existing trail alignments to establish two separate trails running from north to south: one designated exclusively for mountain biking and the other for walking. This clear separation of user groups is

expected to enhance safety for all reserve visitors, reducing the potential for collisions and conflicts between cyclists and pedestrians.

26. By formally recognising and maintaining these trails for both walking and mountain biking, the Shire creates an opportunity to partner with all users on rehabilitation efforts and provide education on conservation of the reserve. Officers propose combining targeted rehabilitation of unused or duplicate tracks with improvements to the designated mountain bike trail, leveraging local knowledge and enthusiasm to achieve better ecological outcomes alongside managed recreation.
27. It should be noted that this proposed amendment is best characterised as a conservation improvement to the status quo, as it increases the likelihood of successful rehabilitation of some areas. In addition, the plan as a whole will have the effect of amending existing Council resolutions (that accepted new trails outside the 'core'), to one that prohibits the construction of any new trails within the reserve.

CONSULTATION AND EXTERNAL ADVICE

28. The Management Plan has been prepared by an independent consultant (Aurora Environmental).
29. Extensive community engagement and consultation have been undertaken at each stage of developing the Management Plan, from inception to completion, as set out in the Community Engagement Plan previously endorsed by Council.
30. An initial phase of community consultation was conducted between 20 November 2024 and 17 January 2025. This included a survey being released on the 'Your Denmark' webpage seeking input from the community about their views for future management of the Reserve, conducting meetings and interviews, as well as receiving formal submissions. Overall, there were 216 surveys completed (refer to Attachment 9.5.1c), meetings and interviews conducted with 8 groups / organisations and 21 individuals, and 8 submissions received.
31. Following the initial round of community consultation, a Draft Management Plan was prepared and released for final public review and stakeholder input between 18 June and 18 July 2025. A survey was made available via the 'Your Denmark' webpage to seek community feedback on the document, and other forms of formal submissions were also received. In addition, community members and stakeholders had the opportunity to meet with the independent consultant from 12.00pm – 2.00pm on Wednesday 9 July to express their views in-person. As part of this second stage of consultation, 240 surveys were completed (refer to Attachment 9.5.1d), 21 formal (non-survey) submissions received, and 23 people attended the face-to-face feedback session with Aurora.
32. Implementing the Community Engagement Plan and ensuring that feedback received from both rounds of public consultation strongly informed the development of an updated Management Plan has maximised the potential for creating broad community support and acceptance.

STATUTORY / LEGAL IMPLICATIONS

Land Administration Act 1997

33. This Act governs the management of A Class Reserves, which are designated to protect areas of high conservation or community value. These Reserves are not intended for long-term commercial development but for public interest uses like conservation, recreation, heritage, and emergency services.
34. Under Section 42 of the Act, any changes to a Reserve's purpose, boundaries, or classification require public advertising, consultation, and tabling in both Houses of Parliament.
35. Through a Management Order governed by Section 46 of the Act, the Shire is the body responsible for the care, control, and management of Kooryunderup–Mt Hallowell Reserve 46618. Under Section 49 of the Act, this responsibility includes the requirement for an up-to-date Management Plan which appropriately addresses conservation and environmental concerns, heritage issues, and proposed development or land use strategies.
36. The Minister for Lands retains significant oversight powers over A Class Reserves under the Act, including Section 50(1) which provides the Minister with the authority to revoke or amend a Management Order – notably in cases of mismanagement or public interest.
37. The Management Plan developed in 2008 is out of date and no longer fit for purpose, which has been the catalyst and driver for developing a new Management Plan that adequately addresses the Shire's responsibilities and community expectations for looking after, protecting and enjoying this valuable local Reserve into the future.

STRATEGIC / POLICY IMPLICATIONS

Corporate Business Plan (CBP) and Long Term Financial Plan (LTFP)

38. The adoption of the Management Plan will require reviews of the CBP and LTFP (scheduled for review in 2025/26) to ensure that adequate funding is allocated to support implementation of the management actions into the future.

Bushfire Risk Management Plan

39. Similarly, the Bushfire Risk Management Plan (currently under review) will need to incorporate the recommended mitigation-related actions.

FINANCIAL IMPLICATIONS

40. The Management Plan outlines a number of actions (refer to Table 14 of document) with different priority levels (low/medium / high) and resourcing requirements (existing / planned /new). These management actions will incur costs for the Shire – both in terms of capital works and staffing.
41. The costs associated with infrastructure upgrades, bushfire mitigation and staff time required for implementation may place pressure on the budget and workload capacity of staff, particularly in the absence of external funding.

- 42. To ensure financial sustainability, the Council Plan and Long Term Financial Plan will need to incorporate and prioritise adequate resourcing (infrastructure funding and staffing) to implement and deliver on the priority actions identified in the Management Plan.

OTHER IMPLICATIONS

Environmental

- 43. The Management Plan has conservation as its primary goal and sets the framework for protecting environmental values into the future, including management practices for recreational activities, invasive weeds, ferals, dieback and climate change impacts.

Economic

- 44. Fire management / bushfire mitigation is one of the stated goals and a key priority covered in the Management Plan. The implementation of actions to protect assets / properties will need to be prioritised accordingly.

Social

- 45. The Management Plan recognises a variety of historical recreational uses that are highly valued by the community (including dog walking and biking), and allows for the continuation of these important social activities in a well-managed way while also protecting the environment.

RISK MANAGEMENT

- 46. Risk Table

Risk	Risk based on history and with existing controls			Proposed Treatment/Control
	Likelihood	Consequence	Risk Rating	
Financial Impact: That the costs of implementing priority actions under the Management Plan places undue pressure on the Shire budget and staff workload capacity	Possible	Moderate	Moderate	Appropriately stage implementation of management actions by planning ahead, reviewing / updating the CP and LTFP, and allocating required resources based on priority / available funds
Legal / Regulatory Compliance: That the Shire fails to meet its responsibilities for	Unlikely	Moderate	Moderate	Adoption of new Management Plan and adequate resourcing of priority actions

Risk	Risk based on history and with existing controls			Proposed Treatment/Control
	Likelihood	Consequence	Risk Rating	
managing an A Class Reserve				
<p>Reputational Impacts: That the Minister for Lands revokes the Shire’s Management Order because the Reserve doesn’t have an up-to-date Management Plan</p>	Unlikely	Moderate	Moderate	Adoption of new Management Plan and adequate resourcing of priority actions
<p>Reputational Impacts: That there is community backlash about how the Management Plan balances conservation with different recreational activities</p>	Possible	Moderate	Moderate	Communication of the extensive community engagement and consultation that’s been undertaken, and how the Shire’s role and responsibility is to strike a balance between different management goals and user group needs



Additional Information provided to Councillors

In accordance with Council's *Meeting Framework Policy* Councillors can ask questions or request additional information on Agenda Items prior to the Council Meeting.

Where the information is requested by 4pm, 7 days prior to the meeting, the information is provided in writing and included as an attachment to the Minutes.

Following are the questions and/or information requested and the Chief Executive Officer's response(s).

Ordinary Council Meeting: 28 April 2026

ITEM 9.5.1 – KOORYUNDERUP – MOUNT HALLOWELL MANAGEMENT PLAN

Cr Lewis raised the following:

BACKGROUND / RATIONAL FOR QUESTION

In the September 2025 agenda (Item 9.5.1 Kooryunderup–Mt Hallowell Management Plan 2025–2035), point 14 states:

“The Management Plan proposes to introduce notable changes to the current use of Kooryunderup – Mount Hallowell, particularly regarding dog walking and biking. At present, dog walking is unrestricted throughout the reserve; under the draft proposal, a substantial area in the south-east (see Figures 8 and 9 in the management plan) will be retained as an off-leash zone, while dog access will be restricted in all other areas to protect sensitive habitats.”

The statement that “dog access will be restricted in all other areas to protect sensitive habitats” appears to imply that dog walking on the Bibbulmun Track presents environmental risks.

QUESTION

Can officers please outline the specific adverse environmental impacts associated with allowing dogs on the Bibbulmun Track within the Kooryunderup–Mt Hallowell reserve?

OFFICER RESPONSE

Environmental impacts (dogs on-lead vs walkers only)

Sensitive Areas

The Management Plan notes the Reserve's vegetation is generally in excellent condition, with localised degraded areas associated with trails and concentrated human use, particularly in the south-western and eastern portions; it also maps key threatening processes such as weeds (Figure D showing condition relating to weed infestation) to inform management focus. Officers interpret the sensitive areas to be those areas outside of the south-western and eastern portions.

Specific Impacts

1) Fauna disturbance and displacement (dogs add a predator cue beyond walkers)

Scientific evidence indicates that wildlife (particularly birds) can be disturbed more strongly when a dog is present, even if leashed, because dogs can function as a predator cue (scent/sight/sound).

Walkers can still disturb fauna, but the evidence indicates the disturbance effect is lower without dogs in the same setting. The Plan identifies the Reserve's high biodiversity values and the presence of threatened fauna recorded within/near the Reserve, which increases sensitivity to disturbance along key track corridors.

For this impact to become "material" at a Reserve scale, the key driver is typically frequency/volume and repetition—i.e., how often wildlife is exposed to the dog cue along the corridor. With low and infrequent use, impacts are more likely to be short-lived and localised near the track; with higher use (or repeated encounters in sensitive times/locations), the probability increases that disturbance becomes more persistent and effectively reduces habitat function near the corridor.

2) Dieback (Phytophthora) spread risk (material even at low use)

The Plan confirms dieback distribution includes the Bibbulmun Track area and notes operational mapping is focused on access points such as the Bibbulmun Track. The Plan's control measures focus on reducing soil movement (dry-soil operations; cleaning of vehicles/equipment/footwear; maintaining boot-cleaning stations and dieback signage). Allowing dogs (even on-lead) introduces an additional soil-contact surface moving the corridor (paws/fur), which can increase the number of opportunities for soil transfer, particularly where animals step off the formed tread or in moist conditions. Controls are

more straightforward for footwear/equipment via hygiene stations than for dogs (i.e., there is no equivalent hygiene station designed for paws/fur).

Dieback is best framed as a soil-movement (biosecurity) risk where the likelihood of spread is driven less by overall “use volume” and more by conditions and hygiene compliance (e.g. wet/muddy soils, stepping off the formed track, or bypassing hygiene infrastructure). In practical risk terms, one “bad” event under high-risk conditions (e.g. a muddy day where contaminated soil is carried past a boundary and deposited in a susceptible area) can have the same or greater consequence than many low-risk events, because it may create a new infestation pathway that is difficult to reverse; this contrasts with fauna disturbance, which is typically high-frequency but lower-per-event consequence and becomes material mainly through repetition/volume over time.

3) Compliance limitations (practical effectiveness of “on-lead” conditions)

The Plan states Ranger presence cannot be maintained at all times and is often infrequent, with reliance on signage, education and informal community policing to support compliance. Off-leash activity typically expands the area and frequency of disturbance (because dogs range further from owners and more often leave the track), increasing the likelihood of wildlife harassment and displacement compared with on-lead walking. Accordingly, the environmental outcomes from permitting dogs on-lead depend not only on the written rule, but on real-world compliance with keeping dogs on-lead and on-trail.

Risk (overall)

If compliance is high and conditions are dry, impacts are more likely to remain minor and localised; conversely, wet conditions and/or repeated non-compliance increases the likelihood that impacts become more persistent. Overall, the likelihood of dogs on lead causing a material, detrimental change to the Reserve’s biodiversity values is best described as low-to-moderate under good conditions, and moderate-to-high under poor conditions.